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Industrial development: Chessie maps a winning strategy

November 9, 1981

RAILWAY AGE

BART girds for growth

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CONGRESSIONAL INFO SVC ***
SRI ACQUISITIONS ***
4520 EAST-WEST HWY #800
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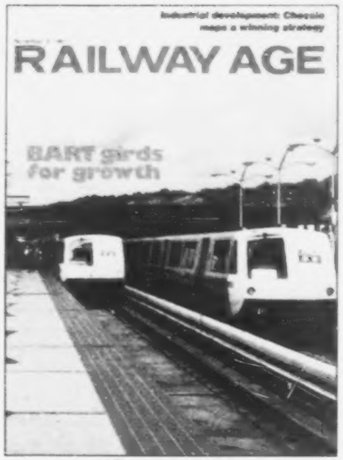
RAILWAY AGE

November 9, 1981

FEATURES



Cover article, page 22

Page 20

Page 34

20 Revamped Elkhart yard gets cars on the move—fast
Conrail's upgrading at Elkhart, part of a $60-million systemwide yard improvement program, has reduced switching costs and cut terminal car-time.

22 BART girds for growth
Now operating at close to its original targets, BART foresees a need to double its capacity in the next five years and is working toward that goal.

24 In full LRV operation, Muni Metro packs them in
Overall ridership on Muni's five rail lines has increased by 40-50% since subway LRV service started. The Boeing cars are working "remarkably well."

30 Chessie maps a winning ID strategy
For industries seeking to locate plants along Chessie System railroads, there's a wealth of information available—including 10,000 maps of on-line sites.

34 MoPac finds that car-scheduling works
The railroad's experiment in scheduling cars (not trains) has proved so successful that's it has been extended systemwide; and it could soon go interline.

36 Alternative fuels: More tests (and more money) are needed
Early results of Southwest Research Institute's program show promise—but funds are needed to move into the development and demonstration stage.

NEWS

4 Short and significant
10 A new course for Pullman Standard
13 Five roads charged in iron ore case
13 CSX: Rail/truck rates for paper
14 A continuing rail revolution in Mexico
14 NW: Clearing the merger path
14 Senate Caucus debates Amtrak
18 New MoPac shop: An industry first
49 The Railroad Market

COMMENT

3 Inside
12 Watching Washington
18 Lines on Labor

DEPARTMENTS

43 People in the News
43 Suppliers
44 Revenues and expenses
45 Advertising sales
46 Classified advertising
47 100 Years Ago
50 Professional cards
51 Guide to advertisers
52 Products Report

COVER: BART photo by William D. Middleton

REVENUES AND EXPENSES OF RAILWAYS

Second quarter figures of calendar year 1981

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

		Operating revenues				Operating expenses														
						Way & structures			Equipment											
		Freight	Other	Total 1981	Total 1980	Total 1981	Total 1980	1981 Deprec.	Total 1981	Total 1980	1981 Deprec.	Total 1981	Total 1980	Operating ratio 1981	Operating ratio 1980	Income after fixed charges 1981	Income after fixed charges 1980	1981 Net Ry. operating income	Net income 1981	Net income 1980
Amtrak	3 mos		300.527	300.527	278.303	18.965	16.096	1.260	91.876	84.290	18.872	332.696	284.706	110.70	102.30	(48.508)	(15.652)	(32.168)	(48.508)	(15.652)
	6 mos		574.748	574.748	534.780	40.887	32.589	2.198	172.817	166.027	34.162	637.972	550.017	111.00	102.84	(94.238)	(31.329)	(63.222)	(94.238)	(31.329)
Atchison, Topeka & Santa Fe	3 mos	597.136	13.059	610.195	530.255	107.807	99.014	3.719	129.065	114.434	21.474	568.855	496.588	93.22	93.65	35.209	27.498	30.689	24.312	22.201
	6 mos	1.165.446	25.982	1.191.428	1.041.672	196.436	178.630	7.277	256.711	229.068	42.292	1.103.430	976.370	92.61	93.73	75.377	54.149	66.046	52.928	42.584
Baltimore & Ohio	3 mos	236.484	8.233	244.717	239.299	59.869	53.293	1.747	54.618	51.590	8.003	240.469	226.290	98.26	94.56	23.294	11.348	(2.339)	16.163	14.220
	6 mos	479.848	16.410	496.258	471.434	96.929	85.680	3.499	112.467	108.755	15.485	474.685	442.398	95.65	93.84	39.544	23.734	10.983	27.816	22.963
Bessemer & Lake Erie	3 mos	27.449	1.820	29.269	32.804	4.549	4.014	682	711	4.320	1.312	20.619	19.784	70.44	60.31	9.972	13.928	3.450	4.770	7.370
	6 mos	48.344	3.316	51.660	51.907	7.278	8.136	1.364	3.172	9.272	2.664	37.396	40.079	72.38	77.21	17.301	14.097	5.640	8.674	7.749
Boston & Maine	3 mos	29.419	1.546	30.965	29.081	6.369	5.148	281	7.674	6.783	360	31.316	27.839	101.13	95.72	712	1.664	(282)	518	(1.260)
	6 mos	58.322	3.199	61.521	57.025	11.935	10.212	563	15.762	14.574	720	61.261	56.495	99.57	99.07	2.338	1.536	395	1.948	(3.987)
Burlington Northern	3 mos	909.404	21.401	930.805	691.136	209.174	150.536	5.421	199.819	151.473	18.497	897.883	657.267	96.46	95.09	44.997	40.733	22.736	34.781	41.547
	6 mos	1.807.280	46.631	1.853.911	1.371.003	333.552	244.884	11.101	399.409	295.504	36.507	1.718.574	1.258.586	92.69	91.80	170.120	136.732	90.075	124.800	117.992
Chesapeake & Ohio	3 mos	173.965	8.848	182.813	256.907	55.878	49.306	1.883	58.114	50.774	3.941	227.400	217.433	124.38	84.63	(21.607)	55.567	(31.416)	(8.271)	42.630
	6 mos	412.845	16.903	429.748	461.435	92.112	80.084	3.761	107.756	101.359	7.168	443.582	410.716	103.21	88.43	30.844	81.669	(15.267)	29.541	63.188
Chicago & North Western	3 mos	224.977	26.262	251.239	217.415	57.077	50.526	1.130	54.036	56.174	4.423	243.198	221.600	96.79	101.92	2.800	(11.134)	7.531	7.788	(11.170)
	6 mos	461.727	49.334	511.061	431.454	102.286	87.941	2.253	116.235	111.055	8.708	488.688	431.682	95.62	100.05	13.102	(9.211)	23.249	18.054	(9.285)
Chicago, Milwaukee, St. Paul & Pac.	3 mos	90.385	12.741	103.126	85.934	24.160	108.516	59	31.593	35.174	3.529	120.554	204.233	116.89	237.66	38.530	(61.238)	(17.804)	36.956*	(79.528)
	6 mos	181.781	24.293	206.074	192.383	34.102	151.470	1.368	66.957	78.309	7.917	231.218	367.957	112.20	191.26	179.266	(99.724)	(26.145)	177.611*	(120.372)
Clinchfield	3 mos	20.682	202	20.884	23.873	4.566	3.879	111	3.590	3.670	981	17.786	16.464	85.16	68.96	5	5	3.441		
	6 mos	47.330	455	47.785	43.279	8.811	7.366	222	7.673	6.681	1.965	37.259	31.369	77.97	72.47	8	5	11.587		
Colorado & Southern	3 mos	36.699	643	37.342	31.096	8.106	6.093	[illegible]	9.775	6.377	702	39.827	29.559	106.55	95.05	607	5.773	(1.381)	1.711	5.531
	6 mos	73.808	1.136	74.944	60.695	14.208	10.698	132	17.611	13.732	1.414	71.237	56.450	95.05	93.00	13.296	13.095	2.836	12.425	14.210
Conrail	3 mos	853.521	167.935	1.021.456	946.533	180.134	214.229	6.482	262.822	266.055	34.979	1.023.731	1.052.624	100.22	111.20	(12.593)	[illegible]	(1.581)	(11.968)	(120.943)
	6 mos	1.694.252	338.868	2.033.120	1.912.468	338.298	363.598	11.499	540.489	542.287	70.488	2.084.560	2.096.166	102.53	109.60	(70.898)	(208.344)	(49.918)	(69.459)	(207.029)
Delaware & Hudson	3 mos	29.549	1.466	31.015	29.976	5.054	4.906	154	8.289	8.559	642	31.459	29.848	101.43	99.57	(1.837)	(306.513)	(338)	(1.837)	(307)
	6 mos	56.803	2.368	59.171	58.648	10.220	9.20[illegible]	288	17.041	17.373	1.271	63.138	59.252	106.70	101.02	(6.820)	(1.907)	(3.755)	(6.820)	(1.907)
Denver & Rio Grande Western	3 mos	81.676	1.444	83.120	67.230	15.992	11.831	627	12.458	10.190	3.392	73.314	58.540	88.20	87.00	9.302	7.261	5.953	5.418	4.639
	6 mos	160.476	2.823	163.299	136.083	29.318	23.262	1.248	24.742	21.609	6.792	140.852	118.349	86.25	86.96	21.289	15.019	13.578	12.356	9.803
Detroit, Toledo & Ironton	3 mos	21.746	761	22.507	18.060	4.209	3.051	172	6.530	5.949	1.132	22.459	19.857	99.78	109.94	(947)	(2.078)	65	(947)	(1.860)
	6 mos	42.954	1.725	44.679	38.626	6.930	5.411	344	12.453	11.813	2.256	43.135	39.414	96.54	102.03	(264)	(1.195)	1.571	(264)	(977)
Duluth, Missabe & Iron Range	3 mos	32.704	1.513	34.297	29.678	6.604	6.787	470	3.247	3.357	719	21.344	20.506	62.23	69.09	13.527	10.107	6.271	7.287	6.297
	6 mos	47.359	1.822	49.181	45.297	12.408	13.011	1.744	6.505	3.217	1.414	40.231	35.688	81.80	78.78	10.206	11.547	1.499	5.879	6.144
Elgin, Joliet & Eastern	3 mos	16.761	11.859	28.620	29.826	3.817	4.020	194	4.099	4.150	1.831	24.612	26.300	85.99	88.18	5.227	6.060	1.556	2.775	3.277
	6 mos	34.814	23.417	58.231	61.084	6.806	7.395	287	7.058	9.260	3.651	47.488	52.538	81.55	86.00	13.612	13.214	4.547	7.416	7.151
Florida East Coast	3 mos	26.129	496	26.625	22.999	6.484	4.331	236	4.257	3.758	1.212	22.779	16.905	85.55	73.50	6.546	8.053	1.579	4.279	5.491
	6 mos	51.452	1.074	52.526	45.885	13.279	9.125	470	7.943	7.234	2.394	45.328	34.410	86.29	74.99	10.767	14.233	3.764	7.133	9.285
Ft. Worth & Denver	3 mos	39.128	717	39.845	35.672	6.651	5.821	86	8.563	9.203	136	35.676	31.479	89.53	88.24	4.125	3.916	2.798	2.754	2.505
	6 mos	81.144	1.589	82.733	66.969	13.357	10.363	169	17.635	16.136	272	68.534	55.676	82.83	83.14	14.306	10.986	9.254	9.361	6.957
Grand Trunk Western	3 mos	58.955	2.578	61.533	46.636	3.289	7.548	122	12.644	8.932	1.495	60.357	47.406	98.08	101.65	25	(816)	1.059	(48)	(807)
	6 mos	111.564	5.638	117.202	100.049	15.268	12.886	845	24.101	22.711	2.994	113.800	99.799	97.09	99.75	1.477	793	4.683	2.752	2.416

*Includes real estate sales

Illinois Central Gulf	3 mos	221 896	18 916	240 812	234 511	55 803	49 757	1 847	67 082	63 296	7 354	256 627	244 373	106.56	104.20	(19 683)	(17 529)	(12 060)	(16 514)	(16 139)
	6 mos	478 165	39 003	517 168	483 191	101 687	87 044	3 719	140 722	128 323	14 695	522 664	479 971	101.06	99.33	(9 779)	(11 129)	(3 644)	(9 071)	(10 684)
Kansas City Southern	3 mos	72 314	3 732	76 046	66 591	15 568	12 742	761	16 721	16 693	4 148	67 612	59 064	88.90	88.69	7 763	7 311	6 427	5 719	5 423
	6 mos	143 789	7 308	151 097	133 580	29 513	23 568	1 525	33 098	31 901	8 112	132 528	116 331	87.71	87.08	17 025	15 657	14 508	12 894	12 269
Long Island	3 mos	5 222	89 685	94 907	92 910	19 877	19 057	826	23 306	17 805	1 767	103 899	93 588	109.47	100.73	(9 251)	(1 005)	(7 930)	(9 251)	(1 005)
	6 mos	10 516	171 931	182 447	177 336	39 518	36 661	1 651	45 791	37 215	3 107	204 326	182 942	111.99	103.16	(22 290)	(6 132)	(19 744)	(22 290)	(6 132)
Louisville & Nashville	3 mos	302 249	5 563	207 812	260 959	56 416	45 839	1 562	65 554	59 584	10 633	281 703	244 285	91.51	93.61	17 471	10 689	24 889	15 177	9 908
	6 mos	607 403	11 437	618 840	524 716	103 107	87 145	3 091	136 039	126 622	21 003	564 194	497 933	91.16	94.89	40 078	17 243	51 973	34 953	15 992
Missouri-Kansas-Texas	3 mos	63 280	4 132	67 412	53 143	14 446	8 776	244	17 004	15 567	891	63 127	49 888	93.64	93.87	1 483	1 150	5 943	2 983	1 150
	6 mos	129 088	7 654	136 742	103 003	24 300	15 116	488	37 882	30 576	1 794	125 867	96 925	92.04	94.09	5 657	2 394	13 191	7 667	2 894
Missouri Pacific	3 mos	459 113	12 684	471 797	416 101	74 772	64 549	2 456	103 633	92 270	15 623	410 732	360 432	87.05	86.62	56 684	48 727	46 214	39 293	34 423
	6 mos	923 757	26 397	950 154	814 911	142 243	111 109	4 871	211 193	186 746	30 480	823 053	708 973	86.52	87.00	115 669	91 025	95 056	78 489	63 649
Norfolk & Western	3 mos	334 016	13 019	347 035	401 532	78 568	74 185	3 454	59 356	68 708	13 748	306 274	313 576	88.25	78.09	47 016	97 640	21 079	26 190	59 000
	6 mos	764 715	27 348	792 063	768 674	136 174	122 305	6 871	134 346	141 780	27 403	631 911	609 942	79.78	79.34	182 613	175 720	84 766	104 826	107 304
Pittsburgh & Lake Erie	3 mos	18 365	1 280	19 645	22 566	3 579	3 297	36	3 103	1 449	252	18 263	15 958	92.96	70.71	(1 093)	3 225	1 162	(1 318)	2 598
	6 mos	36 208	2 756	38 964	41 486	6 444	6 086	66	6 229	2 539	486	36 530	30 494	93.75	73.50	(1 814)	4 495	2 062	(2 196)	3 461
St. Louis Southwestern	3 mos	99 662	1 519	101 181	72 491	17 857	13 313	506	17 372	13 637	6 137	88 042	69 483	87.01	95.85	11 359	2 357	9 413	7 633	1 327
	6 mos	189 138	3 084	192 222	140 547	33 256	22 299	1 054	32 584	22 864	12 333	167 752	126 047	87.26	89.68	21 051	12 396	17 734	14 315	8 821
Seaboard Coast Line	3 mos	318 570	9 235	327 805	300 009	59 634	50 712	2 320	76 739	71 586	9 816	306 877	275 009	93.61	91.66	40 978	45 753	20 614	40 582	43 510
	6 mos	651 094	20 130	671 224	602 180	113 860	98 757	6 639	155 935	141 552	19 102	612 746	548 642	91.28	91.10	105 477	86 640	54 549	101 386	82 037
Soo Line	3 mos	78 630	1 298	79 928	71 143	20 879	18 285	378	14 386	14 447	2 061	69 855	65 849	87.39	92.55	10 403	5 841	6 339	6 411	4 157
	6 mos	156 482	2 910	159 392	151 318	31 723	28 347	752	29 120	30 371	4 065	132 010	129 254	82.82	85.41	28 254	22 612	17 128	17 501	15 144
Southern	3 mos	428 619	9 533	438 152	411 045	67 541	68 964	4 502	80 335	73 529	19 911	352 807	332 125	80.52	80.80	81 577	70 634	57 704	52 527	49 343
	6 mos	856 129	19 478	875 607	812 031	125 564	133 358	9 026	160 362	147 148	39 164	696 451	657 520	79.53	80.97	173 130	145 391	120 371	111 634	100 557
Southern Pacific	3 mos	593 798	17 270	611 068	501 163	96 767	63 047	5 062	150 043	133 583	21 546	591 675	493 631	96.82	98.53	21 235	3 728	15 917	18 001	1 316
	6 mos	1 123 062	33 295	1 156 357	998 589	175 972	125 670	9 949	285 917	266 012	43 221	1 130 784	996 129	97.78	99.75	24 918	(5 721)	21 991	21 751	(5 371)
Union Pacific	3 mos	532 702	7 857	540 559	481 732	92 300	79 952	3 027	105 044	95 949	24 462	470 262	427 581	86.99	88.75	57 749	41 924	47 136	34 509	31 090
	6 mos	1 059 989	15 598	1 075 587	959 214	162 645	157 487	5 957	204 428	188 718	48 971	910 183	845 456	84.62	88.14	139 605	89 891	113 201	87 277	66 513
Western Maryland	3 mos	19 679	978	20 657	24 978	5 642	5 708	194	3 084	2 966	1 636	17 624	19 223	85.31	76.96	2 879	6 633	1 777	1 615	4 301
	6 mos	41 168	1 968	43 136	44 523	10 199	9 717	387	5 074	6 348	3 209	37 254	37 994	86.36	85.33	5 775	7 654	3 365	3 241	4 842
Western Pacific	3 mos	46 105	511	46 616	42 702	8 185	6 081	102	10 910	11 874	1 667	49 656	46 241	106.52	108.28	(2 554)	(1 679)	(2 646)	(2 199)	(1 465)
	6 mos	94 055	1 123	95 847	85 683	14 734	11 106	193	21 609	21 566	3 347	96 282	88 185	100.45	102.92	(375)	(863)	(366)	(385)	(815)

RAILWAY AGE
ADVERTISING SALES

William J. Cavenagh, Director

New York, N.Y. 10014
345 Hudson Street (212) 620-7200
W. Arthur Cubbage, Regional
Sales Mgr.

Chicago, Ill. 60602
29 E. Madison St. (312) 641-5815
Robert D. Bartley, Regional Mgr
Glen A. Schlueter
Regional Sales Mgr
Pittsburgh, Pa. 15237
1005 McKnight Park Drive
McKnight East
Telephone: (412) 366-0702
Ronald M. Giallonardo
Regional Sales Mgr
Houston, TX 77079
Hawley-Lindenberger & Assoc
11777 Katy Freeway
Suite 155
(713) 870-0470
Robert Hawley
Gary Linderberger

Dallas, Tex. 75225
P.O. Box 25045
Preston Station
(214) 361-6972
Joseph Sanders

Santa Monica, CA 90403
2444 Wilshire Blvd
(213) 829-0281
Fred Klaner, Jr
Ed Klaner

Sausalito, Cal. 94965
3030 Bridgeway Building
(415) 332-6750
Chris Vogler

Kent, BR6 OHE, England
Priory Gate House
Church Hill
Orpington
Kenneth J. Hendry
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Telex: 896228

Rodgau 3, Germany
Siegfried D. Kamper
P.O. Box 300468
Nahestrasse 8
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Paris 75016, France
Gerard Lasfargues
32 Rue Desbordes Valmore
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Genova 16121, Italy
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Via G. Frua, 8-Suite 1739
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Tokyo, Japan
C.H. Yiu, Managing Director, Sales
Kimuraya-Makina Bldg
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Minato-ku
Telephone: 453-7361
Cable: SUNGAINSHIA, TOKYO

Market

CARLOADINGS

Loadings of revenue freight in the week ended October 17 totaled 435,551 cars, according to the Association of American Railroads. This was a decrease of 14,483 cars, or 3.2%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended October 17 are estimated at 18.8 billion, an increase of 1.2% above the corresponding week of 1980.

REVENUE FREIGHT CARLOADINGS

Commodity	**Oct. 17 week**	**Oct. 10 week**
Grain	24,501	24,689
Farm products	6,074	5,568
Metallic ores	28,843	30,012
Coal	137,668	133,640
Crushed stone, gravel & sand	13,046	12,861
Nonmetallic minerals	11,961	11,886
Grain mill products	14,133	14,418
Food & kindred products	15,394	15,169
Primary forest products	17,919	18,209
Lumber & wood products (except furniture)	6,322	6,021
Pulp, paper & allied products	18,399	18,220
Chemicals & allied products	24,557	24,232
Petroleum products	5,171	5,148
Stone, clay & glass products	12,539	13,057
Coke	6,381	6,236
Metals & products	12,877	13,733
Motor vehicles & equipment	15,910	14,888
Waste & scrap materials	11,109	10,766
Forwarder & shipping assn. traffic	9,506	10,123
All other carloads	43,015	43,565
LCL traffic	206	211
Total cars loaded	**435,551**	**432,652**
Cumulative total,	1981	1980
42 weeks	**17,678,168**	**18,304,940**
Estimated revenue ton-miles (billions), 42 weeks	**752.0**	**739.1**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Oct. 10 totaled 35,474 cars (6.6% above the corresponding 1980 week) and 64,806 trailers or containers (up 10.0% from 1980). Cumulative volume for the first 41 weeks of 1981 is 1,340,382 (up 1.9% from 1980) and 2,432,089 trailers or containers (up 1.8% from 1980).

CANADIAN CARLOADINGS

Canadian railway freight loaded in the seven-day period ended Sept. 30 totaled 6.1 million tons (down 10.9% from 1980). Cars loaded totaled 85,631 (down 14.4% from 1980). Cumulative loadings for 1981 were up to 189.1 million tons (down 4.6% from 1980).

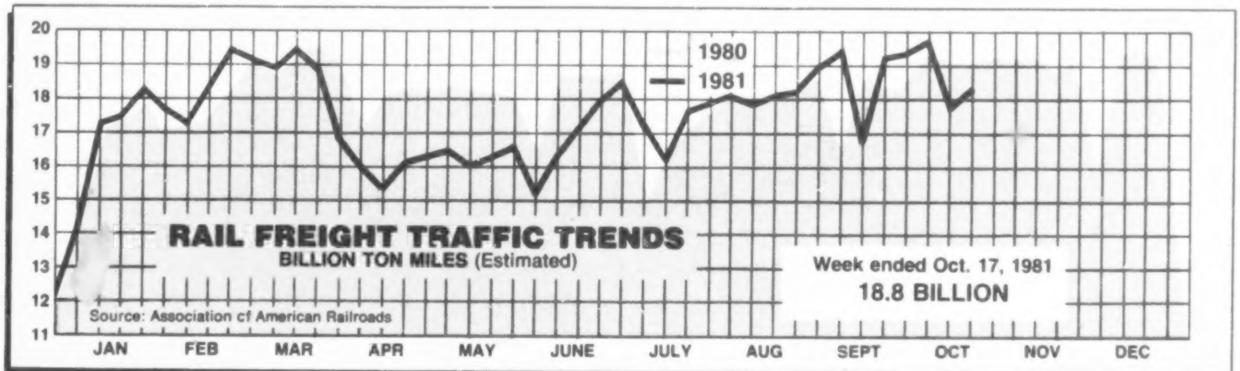
- *Conrail.*—Has completed a $22-million equipment, yard and track project to serve two new General Motors plants at Moraine, Ohio. The two facilities—a light truck assembly plant and a diesel truck engine plant—comprise the largest new-plant location in Conrail's five-year history. The two plants will bring Conrail an estimated 20,000 carloads of traffic a year. Conrail expenditures include $4 million for enclosed bi-level cars for carrying trucks, $9 million for yard improvements at Moraine and Dayton, and $9 million for track improvements on the Cincinnati-Dayton main line, which serves the Moraine plants. In addition to the new bi-levels, Conrail is assigning more than 500 auto parts boxcars and flatcars for traffic to and from the two plants.

- *Dade County Transportation Administration (DCTA).*—Westinghouse Electric—which early this year was awarded a contract by DCTA for design and construction of the Metro-Dade County Downtown Component of Metrorail (DCM)—has subcontracted with Nissho-Iwai American Corp. of Tokyo for the supply of vehicle shells valued at nearly $2 million. Nissho-Iwai will supply 12 shells consisting of steel frames and doors, aluminum sides and tops, and fire retardant fiberglass ends. The DCM will complement the 21-mile Metrorail rapid transit system, now under construction, by distributing passengers from the downtown Government Center Station via a 1.9-mile elevated loop.

- *Missouri Pacific.*—Included in a $20.4-million increase in its modernization budget for 1981 will be $7.5 million for acquisition of additional roadway maintenance machinery and equipment, bringing total spending for this purchase to $10.7 million. In the new orders (to be delivered by the end of the year) are 18 tampers equipped with laser liners, 18 ballast regulators, 7 bridge tie cranes, 10 automatic spike setters-drivers, 7 tie removers, and 4 Speed Swings.

- *New York City Transit Authority.*—Capital budget for 1982 is now estimated at $1.296 billion, of which more than half—$736 million—is earmarked for acquisition of more than 600 new rapid transit cars.

- *Santa Fe.*—Ordered two large-scale computer systems valued at more than $18 million from Sperry Univac Division of Sperry Corp. The new computers, 1100/84 and 1100/82 multiprocessors, will be installed at the road's Topeka, Kan., data-processing center; with the computers, Santa Fe will be using the "MAPPER" software system developed by Sperry Univac.



RAIL FREIGHT TRAFFIC TRENDS
BILLION TON MILES (Estimated)

Source: Association of American Railroads

Week ended Oct. 17, 1981
18.8 BILLION

/ C8400-1

What the new tax law means to railroads

November 30, 1981

RAILWAY AGE

TOFC/COFC: It's a growth market again

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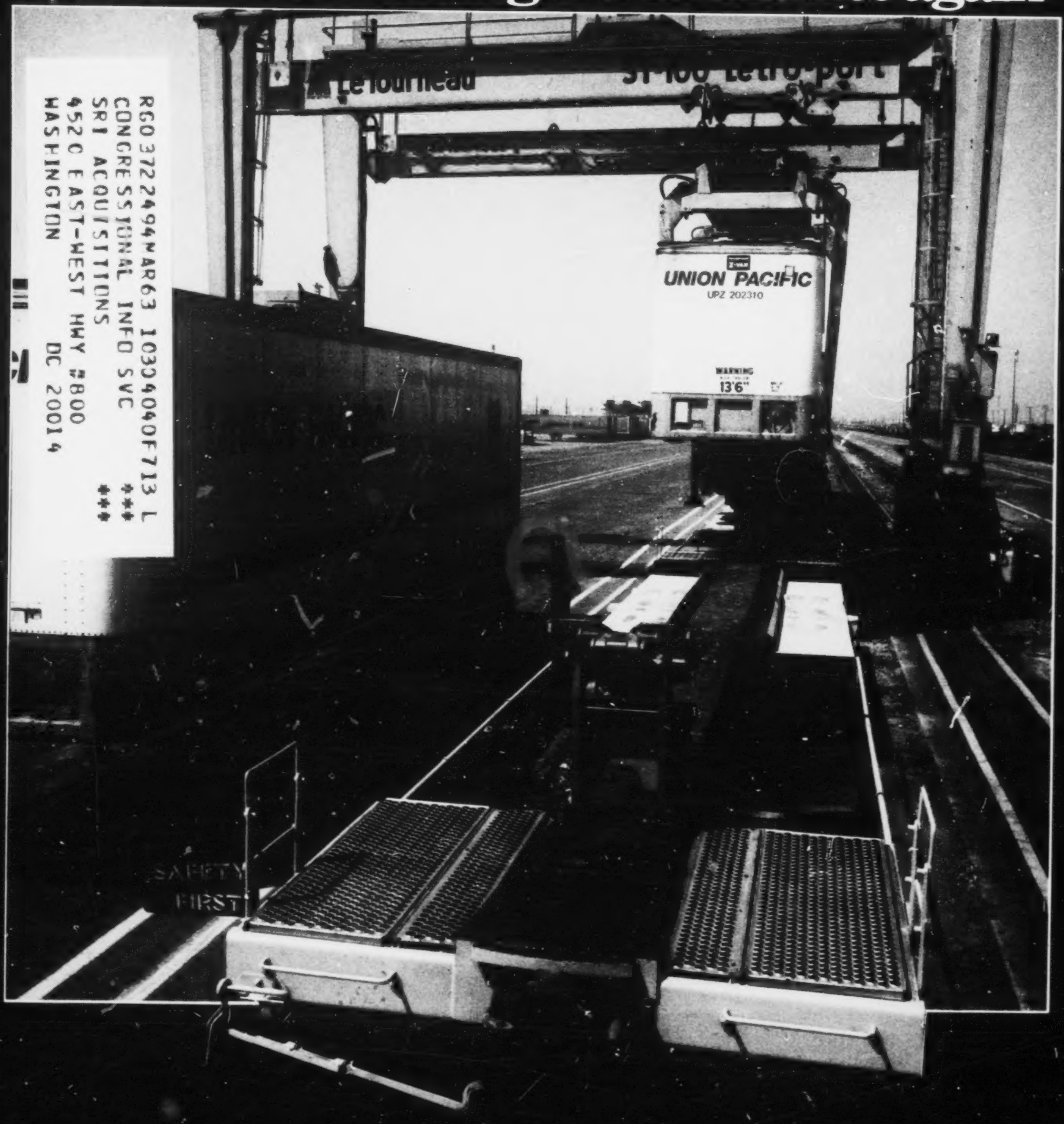
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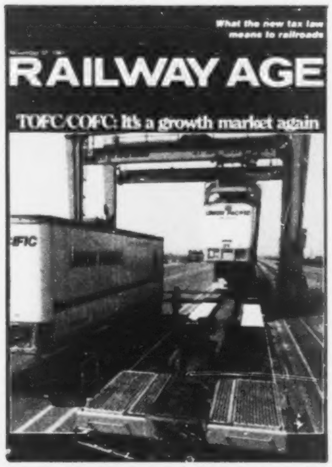
RAILWAY AGE

November 30, 1981

FEATURES


What the new tax law means to railroads
RAILWAY AGE
TOFC/COFC: It's a growth market again

Cover article, page 22

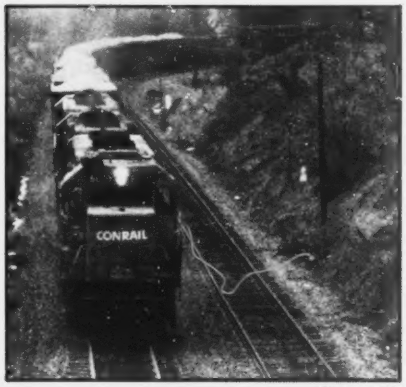
22 TOFC/COFC: It's a growth market again
In a recession year that has seen overall railroad traffic slide, piggyback is bucking the trend. Deregulation has helped; savvier marketing and improved equipment and service are also contributing to the turnaround.

26 CP Rail places its bets on domestic containers
The shift of boxcar traffic into containers is well under way. CP is investing $80 million in intermodal improvements, with the emphasis on domestic containers. They now come in both 44-ft, 3-in. and 29-ft sizes.

30 A unit train that's in the chips
A Conrail/Hammermill Paper Co. unit train has now completed 10 years of operation. Associate Editor Bill Fahrenwald, who was aboard the train on its 936th trip, tells how it came to be—and how both parties have benefited.

36 What the new tax law means to railroads.
While certain provisions of the law grant important short-term benefits—particularly in track depreciation—the overall effects are complex and poorly understood, says AAR Executive Vice President Richard E. Briggs.

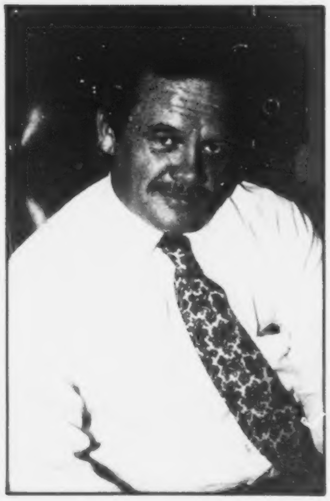
41 Wheelsets: A world view
The seventh International Wheelset Congress in Vienna covered all aspects of the subject—metallurgy, design, manufacture, maintenance, and performance. Associate Editor John Armstrong summarizes the proceedings.



Page 30

NEWS

4 Short and Significant
10 Non-ops retreat on wage demands
12 How Family Lines cut its fuel bill
16 Coal traffic sets new records
16 RPI backs OT-5 changes
16 Justice probes flag-out boycott
20 FRA gets bids for Conrail lines
56 The Railroad Market



Page 36

COMMENT

3 Inside
12 Watching Washington
20 Lines on Labor

DEPARTMENTS

46 People in the News
46 Associations
48 Suppliers
52 100 Years Ago
55 Advertising Sales
55 Letters
56 Carloadings
58 Classified Advertising
59 Professional Cards
59 Guide to Advertisers
60 Products Report

COVER: Les Wolf, Union Pacific photographer, Los Angeles, took this picture of a Trailer Train 4-Runner being loaded at UP's Hobart Yard in East Los Angeles.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Nov. 7 totaled 424,838 cars, according to the Association of American Railroads. This was a decrease of 32,723 cars, or 7.2%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Nov. 7 are estimated at 18.6 billion, a decrease of 2.1% below the corresponding week of 1980.

REVENUE FREIGHT CARLOADINGS

	Nov. 7 week	Oct. 31 week	Oct. 24 week
Grain	30,538	28,853	25,197
Other farm products	6,487	6,724	6,395
Metallic ores	23,337	27,180	31,199
Coal	131,973	136,955	134,826
Crushed stone, gravel & sand	11,284	11,273	12,641
Nonmetallic minerals	11,247	12,029	11,190
Grain mill products	13,858	14,166	14,366
Food & kindred products	15,333	15,429	15,442
Primary forest products	17,748	17,014	17,965
Lumber & wood products (except furniture)	5,923	6,822	6,269
Pulp, paper & allied products	17,977	19,375	18,243
Chemicals & allied products	23,736	24,477	25,042
Petroleum products	5,177	5,185	5,278
Stone, clay & glass products	12,292	12,618	12,700
Coke	6,199	5,792	6,379
Metals & products	12,711	14,343	14,602
Motor vehicles & equipment	14,403	16,657	16,027
Waste & scrap materials	10,301	11,115	10,810
Forwarder & shipper assn. traffic	9,698	10,223	10,243
All other carloads	44,398	47,217	44,190
LCL traffic	218	305	255
Total Cars Loaded	**424,838**	**443,752**	**439,259**
Cumulative total,	1981		1980
45 weeks	**18,986,095**		**19,677,772**
Estimated revenue ton-miles (billions), 45 weeks	**809.1**	**796.0**	

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Oct. 31 totaled 36,872 cars (8.8% above the corresponding 1980 week) and 67,647 trailers or containers (up 9.7% from 1980). Cumulative volume for the first 44 weeks of 1981 is 1,447,301 cars (up 2.2% from 1980) and 2,628,940 trailers or containers (up 2.2% from 1980).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Oct. 14 totaled 4.6 million tons (down 0.5% from 1980). Cars loaded totaled 64,500 (down 3.9% from 1980). Cumulative loadings for 1981 were up to 199.9 million tons (down 3.7% from 1980).

- *Amtrak.*—Is installing 22.7 miles of cwr between Philadelphia and Harrisburg at a cost of $3.9 million. Work is to be completed by early spring of 1982.

- *CP Rail.*—Placed an order with National Steel Car for an additional 100 89-ft, 4-in., 100-ton capacity container flatcars. This brings to 265 the total number of such cars to be delivered to CP Rail by next February at a total cost of $16.25 million. The cars will be used primarily for 20-ft and 40-ft marine containers but are also equipped to handle 44-ft, 3-in. and 29-ft domestic containers.

- *Maine Central.*—Directors approved a $4.1-million improvement program for 1982, a 60% increase over the 1981 program. Included will be eight miles of new rail, 12 miles of relay rail, tie and ballast renewal, and rolling stock rehabilitation and modernization.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	September	August		Nine months	
	1981	1980	1981	1981	1980
Built new by carbuilders	3,299	6,596	2,971	34,431	63,656
Built new in RR shops	230	351	213	2,742	4,401
Built new—total	3,529	6,947	3,184	37,173	68,057
Rebuilt	84	199	65	847	1,122
TOTAL DELIVERED	**3,613**	**7,146**	**3,249**	**38,020**	**69,179**
Locomotives (new and rebuilt)	47	80	43	555	1,388

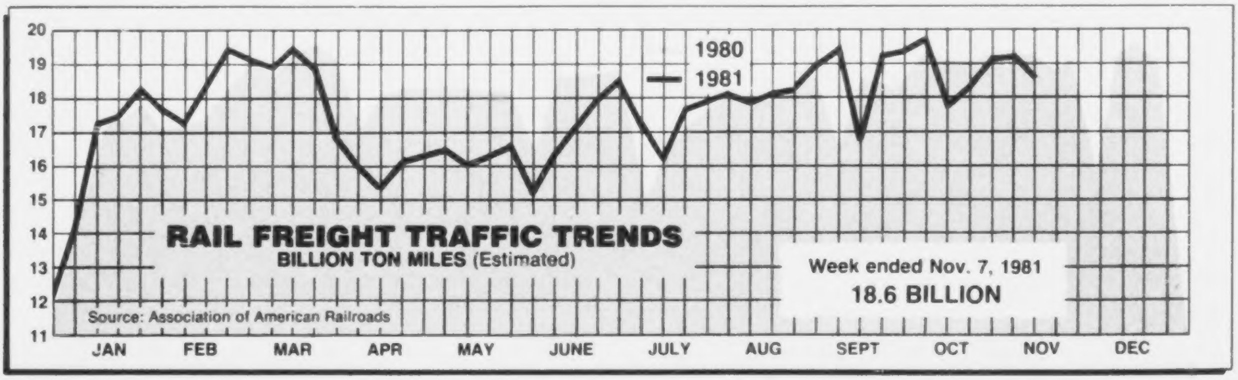
ORDERED

To be built new by carbuilders	1,743	4,406	798	13,974	31,391
To be built new in RR shops	0	0	0	253	2,915
To be built new—total	1,743	4,406	798	14,227	34,306
To be rebuilt	0	0	0	1,100	1,063
TOTAL ORDERED	**1,743**	**4,406**	**798**	**15,327**	**35,369**

ON ORDER AND UNDELIVERED

	October 1	September 1		Average backlog	
	1981	1980	1981	1981	1980
To be built new by carbuilders	19,837	59,806	21,403	31,899	81,760
To be built new in RR shops	2,015	4,766	2,245	2,963	5,590
To be built new—total	21,852	64,572	23,648	34,862	87,350
To be rebuilt	253	41	337	309	319
TOTAL ON ORDER	**22,105***	**64,[illegible]13**	**23,985**	**35,171**	**87,669**
Locomotives (new and rebuilt)	228	595	267	337	912

*Due to revisions and cancellations of some orders, the Oct. 1, 1981 backlog has been reduced by 10 cars.



RAIL FREIGHT TRAFFIC TRENDS
BILLION TON MILES (Estimated)

Source: Association of American Railroads

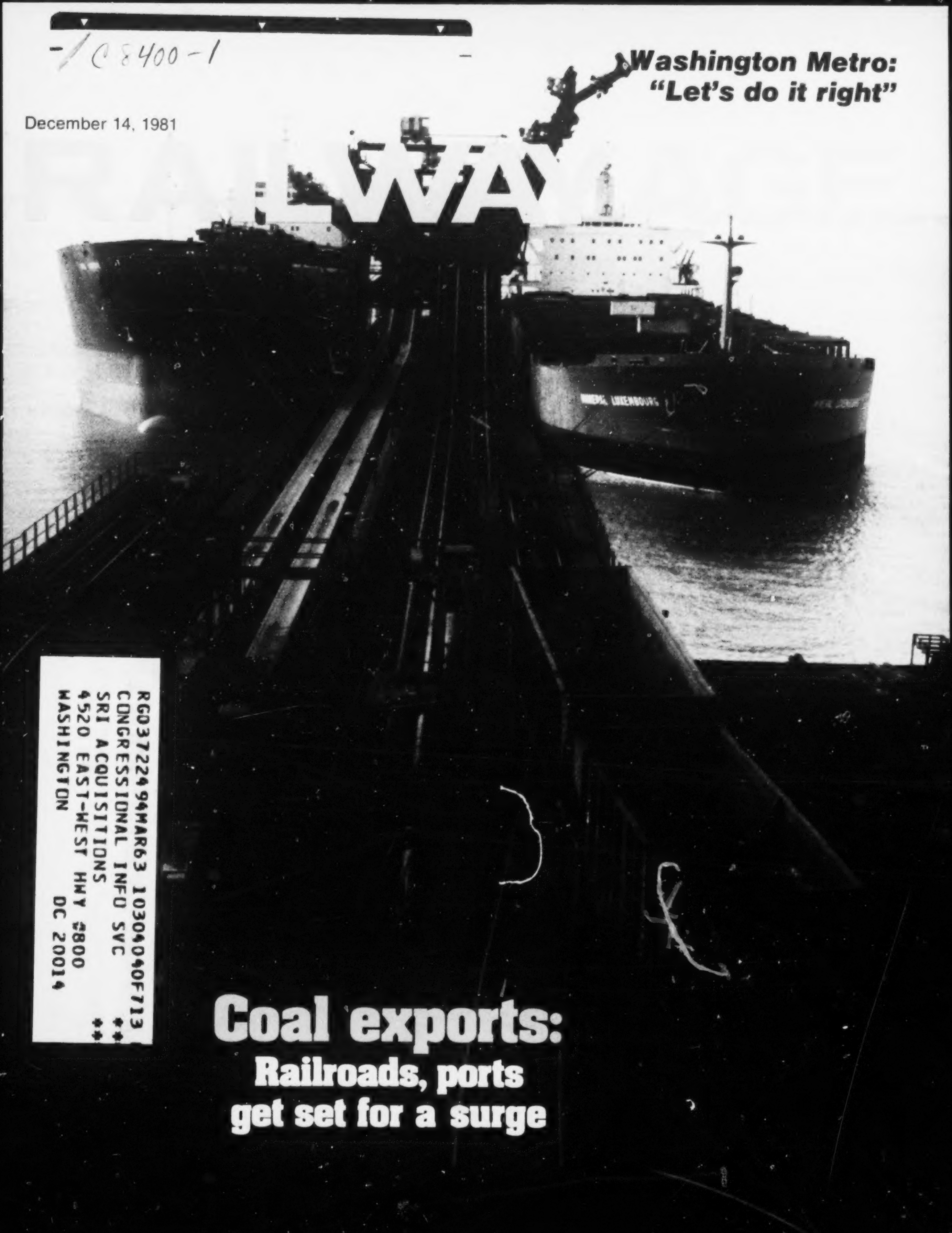
Week ended Nov. 7, 1981
18.6 BILLION

-/C8400-1

Washington Metro: "Let's do it right"

December 14, 1981

WAY



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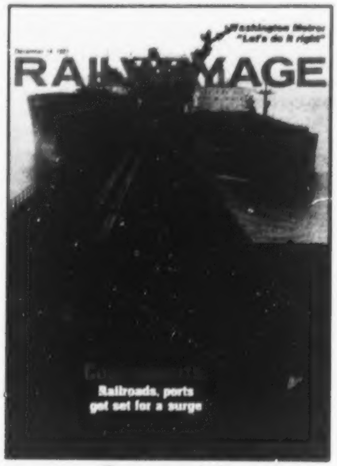
Coal exports:

Railroads, ports get set for a surge

RAILWAY AGE

December 14, 1981

FEATURES


December 14, 1981
Washington Metro: "Let's do it right"
RAILWAY AGE
Railroads, ports get set for a surge

Cover article, page 24

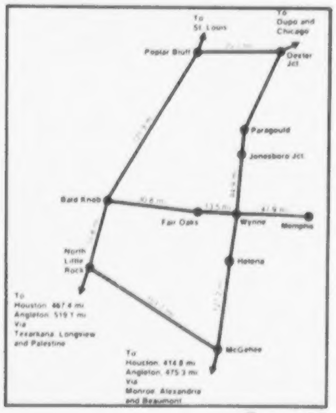
24 **Coal exports: Railroads, ports get set for a surge**
Nobody knows how big the export boom will finally prove to be—but a growing number of ports on three coasts are betting that it will be very big indeed.

30 **A bigger role for CN's northern line**
CN Rail will spend $230 million to upgrade the 467-mile line between Prince George and Prince Rupert, a port that looms big in CN's export coal plans.

32 **MoPac: From branch line to main line**
With a big assist from a Tamper RCO, Missouri Pacific is converting a slow-speed branch line in eastern Arkansas into a 60-mph north-south main line.

34 **Washington Metro: "Let's do it right"**
If Metrorail is, as some say, one of the last big heavy rail transit systems, then WMATA is determined that it will also be the best and grow to full size.

40 **Pan Am delegates view supply-side railroading**
Highlights of the recent XV Pan American Railway Congress in Mexico City were outdoor and indoor exhibits with a strong U.S. and Canadian accent.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Dexter Jct.
Paragould
Jonesboro Jct.
Bald Knob
Fair Oaks
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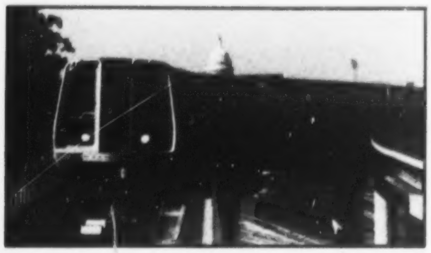
Wynne
47.9 mi
Memphis
North Little Rock
Helena
McGehee
To Houston 467.4 mi Angleton 519.1 mi Via Texarkana, Longview and Palestine
To Houston 414.8 mi Angleton 475.3 mi Via Monroe, Alexandria and Beaumont

Page 32

NEWS

4 Short and Significant
10 UP holds on to IC shares
10 Missile trains: An old idea revived
10 CTA tools up for winter
12 ICC chairman defends his record
14 Half-year earnings nudge $1 billion
19 NW seeks bigger stake in airline
19 Recycled fumes heat car shop
45 Track Train Dynamics Newsletter
52 The Railroad Market



Page 34

COMMENT

3 Inside
12 Watching Washington
19 Lines on Labor

DEPARTMENTS

50 People in the News
50 Suppliers
50 Advertising Sales
51 Transit
52 Carloadings
53 Professional Cards
54 Classified Advertising
55 Guide to Advertisers
56 Products Reports

COVER: Collier takes on Chessie coal at Newport News, Va. Photo by Chessie Staff Photographer John B. Corns, Cleveland.

Half-year earnings nudge $1 billion

Despite a slight drop in both carloadings and ton-miles, Class I railroads were able to post ordinary (net) income of $977.3 million in this year's first half, more than double the $438.5 million they earned in first-half 1980. Operating revenues for the 1981 period rose to $15.241 billion, up 10.9% from 1980, while operating expenses were kept at $14.139 billion, up only 8.4%.

Dr. Harvey A. Levine, the AAR's vice president of economics and finance, attributed the relatively strong 1981 performance to "increases in coal traffic, greater operating efficiency, and rapid recovery of inflationary cost increases as permitted under the Staggers Rail Act of 1980."

While Dr. Levine found the improvement "gratifying," he cautioned that "total revenue adequacy requires a sustained period of rates of return equal to the cost of obtaining debt and equity financing." He said the 4.56% rate of return for the year ended June 30, 1981, was "substantially below the 12.1% railroad cost-of-capital as calculated by the Interstate Commerce Commission for the calendar year 1980, and even further below the anticipated cost of capital in 1981."

The AAR announced first-half results on Nov. 4. It will be several weeks before industry-wide results for the third quarter are tabulated. A number of individual-road reports are in, however. They are mixed, with the coal roads still showing extraordinary strength, other roads doing not so well.

The most spectacular third-quarter performance was reported by Norfolk & Western. NW's third-quarter net of $92.7 million was up 113% from the corresponding 1980 quarter; NW's nine-months income of $197.5 million was up 31% from 1980. Strong coal traffic more than offset softness in merchandise loadings. NW President Robert B. Claytor told financial analysts in New York, "We originated 8.8 million tons of coal for export during the quarter, substantially better than any previous quarter in our history and 28% above the third quarter last year," said Claytor.

Southern, NW's prospective merger partner, also reported record earnings for both the third quarter ($48.3 million, up 33.4% from the 1980 period) and the first nine months ($160.0 million, up 17%). Noting that these results were achieved in the face of reduced carloadings in many of the railroad's major commodities, Southern President Harold H. Hall said general rate increases and continued efforts to control costs accounted for the improvement, along with the comeback of coal following the 73-day miners' strike that ended in early June.

CSX Corp. railroads reported record third quarter earnings of $104.8 million, an increase of 87% over the $55.9 million posted in third quarter 1981, due to "exceptionally strong domestic and export coal markets, tight expense controls and merger related efficiencies." Nine-months earnings also were at a record high: $229.6 million, up 23% from 1980.

Conrail, which reported a profit of $13.8 million for the second quarter, did even better in the third quarter, with a black figure of $64.9 million—the first time in its history that it has reported consecutive quarterly profits. For the nine-month period, Conrail reported a net of $12.8 million, compared with a loss of $231.8 million for the comparable 1980 period. Said Conrail Chairman L. Stanley Crane: "This turnaround in the corporation's financial performance stems primarily from successful efforts to reduce costs, since carloadings of traffic in the first nine months of 1981 were 5.5% lower than in the same period of 1980. In 1981, Conrail management has emphasized a program to reduce the size of our rail plant and employee force to bring both in line with the traffic we now have and are projecting."

Union Pacific Railroad reported third-quarter earnings of $46.9 million, down 8% from the comparable 1980 figure. "The railroad's earnings reflect the overall economy," said James H. Evans, corporate chairman. "Total carloadings were down 5%, while revenue ton-miles declined 9%. Shipments in the farm products category were adversely affected by soft prices for grain. Coal traffic, however, was buoyed by steadily increasing shipments to the West Coast for export to the Pacific Rim and was up 20%."

Southern Pacific Co.'s railroad subsidiaries had operating income of $7.1 million in the third quarter, down from $32.5 million in the 1980 quarter. SP earnings were hurt by reduced loadings of lumber and plywood, processed foods, grain, paper products, petroleum and motor vehicle parts.

CLASS I RAILROADS IN THE UNITED STATES
For the Second Quarter

	1981 (millions)	1980 (millions)
Operating Revenues	$7,581.8	$6,943.2
Operating Expenses	7,178.7	6,646.5
Income Taxes on Ordinary Income	72.7	63.5
Provision for Deferred Taxes	62.8	64.2
Net Railway Operating Income		
United States	274.2	263.3
Eastern District	Def. 13.7	5.4
Southern District	96.4	100.7
Western District	191.5	157.3
Ordinary Income[1]		
United States	340.9	173.9
Eastern District	18.3	8.8
Southern District	96.1	90.1
Western District	226.5	74.9

For the First Six Months

	1981 (millions)	1980 (millions)
Operating Revenues	$15,241.4	$13,745.6
Operating Expenses	14,138.9	13,048.1
Income Taxes on Ordinary Income	198.0	123.6
Provision for Deferred Taxes	175.0	138.0
Net Railway Operating Income		
United States	742.8	557.4
Eastern District	29.3	Def. 5.7
Southern District	238.6	209.8
Western District	474.8	353.3
Rate of Return[2]		
After Provision for Deferred Taxes	4.56%	3.07%
Ordinary Income[1]		
United States	977.3	438.5
Eastern District	85.2	Def. 0.9
Southern District	246.2	193.2
Western District	645.8	246.1

Def.—Deficit

[1] - Income before extraordinary items.

[2] - Rate of return for 12 months ended June 30 (preliminary)

Market

CARLOADINGS

Loadings of revenue freight in the week ended Nov. 21 totaled 431,944 cars, according to the Association of American Railroads. This was a decrease of 28,057 cars, or 6.1%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Nov. 21 are estimated at 18.6 billion, a decrease of 2.4% below the corresponding week of 1980.

REVENUE FREIGHT CARLOADINGS

Commodity	**Nov. 21 week**	**Nov. 14 week**
Grain	30,437	26,979
Other farm products	6,256	6,581
Metallic ores	26,605	24,539
Coal	136,781	136,338
Crushed stone, gravel & sand	10,713	10,643
Nonmetallic minerals	9,662	10,158
Grain mill products	14,344	13,965
Food & kindred products	15,495	14,711
Primary forest products	18,636	17,806
Lumber & wood products (except furniture)	6,668	5,757
Pulp, paper & allied products	18,273	17,544
Chemicals & allied products	23,685	24,651
Petroleum products	5,535	5,024
Stone, clay & glass products	11,998	12,091
Coke	5,972	6,204
Metals & products	12,977	12,712
Motor vehicles & equipment	14,106	15,103
Waste & scrap materials	10,400	10,604
Forwarder & shipper assn. traffic	9,819	9,301
All other carloads	43,361	42,233
LCL traffic	221	237
Total Cars Loaded	**431,944**	**423,181**
Cumulative total,	1981	1980
47 weeks	**19,841,042**	**20,583,356**
Estimated revenue ton-miles (billions), 47 weeks	**838.2**	**833.5**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Nov. 14 totaled 33,940 cars (7.2% above the corresponding 1980 week) and 61,919 trailers or containers (up 7.6% from 1980). Cumulative volume for the first 46 weeks of 1981 is 1,516,893 (up 2.5% from 1980) and 2,755,589 trailers or containers (up 2.5% from 1980).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Nov. 7 totaled 5.1 million tons (up 1.8% from 1980). Car loaded totaled 73,008 (down 2.1% from 1980). Cumulative loadings for 1981 were up to 217 million tons (down 4.0% from 1980).

- *Dowty Corp., Railway Products Division.*—Signed a contract with Nikex, the Hungarian Trading Company for Products of Heavy Industry, for supply of hydraulic retarders. The retarders, to be delivered by the end of the year, will be installed on a trial basis in one of the Hungarian State Railways' classification yards.

- *Federal Paper Board Co.*—Is acquiring 168 100-ton-capacity log cars from the Railcar Division of Evans Products Co.'s Transportation Systems and Industrial Group. The cars are designed to accommodate log lengths up to 65 feet.

- *New York Metropolitan Transportation Authority.*—Awarded a $5-million contract to Dravo Utility Constructors, Inc. (DUCI), a subsidiary of Dravo Corp., for construction management services in connection with the Long Island Rail Road's West Side storage yard project. LIRR's new $158-million yard, just two blocks from Pennsylvania Station in mid-Manhattan, will be able to accommodate up to 350 passenger railcars. It is due to be completed in 1985.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	October		**September**	**Ten Months**	
	1981	**1980**	**1981**	**1981**	**1980**
Built new by carbuilders	2,656	6,956	3,299	37,137	70,712
Built new in RR shops	244	412	230	2,986	4,813
Built new—total	2,900	7,368	3,529	40,123	75,525
Rebuilt	115	21	84	962	1,143
TOTAL DELIVERED	**3,015**	**7,389**	**3,613**	**41,085**	**76,668**
Locomotives (new and rebuilt)	55	101	47	610	1,489

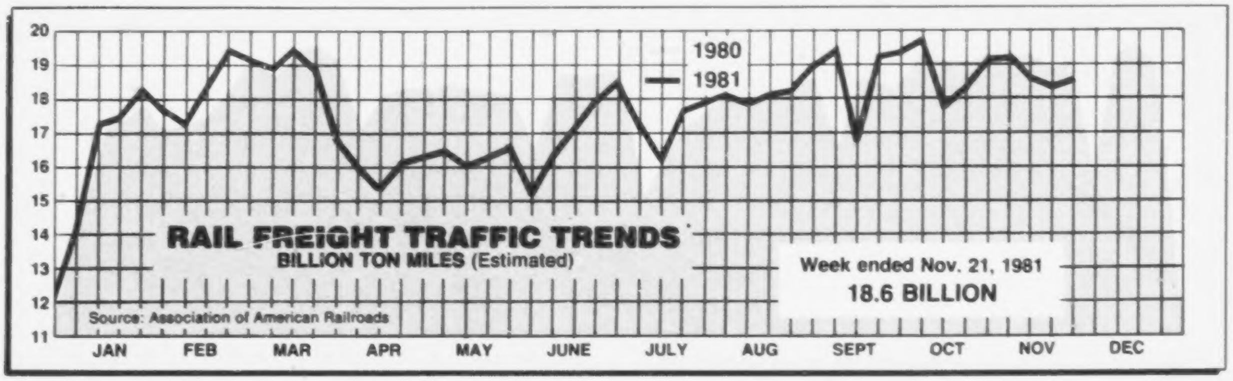
ORDERED

	October		**September**	**Ten Months**	
	1981	**1980**	**1981**	**1981**	**1980**
To be built new by carbuilders	638	1,847	1,743	14,662	33,058
To be built new in RR shops	375	200	0	628	3,115
To be built new—total	1,013	2,047	1,743	15,290	36,173
To be rebuilt	0	0	0	1,100	1,063
TOTAL ORDERED	**1,013**	**2,047**	**1,743**	**16,390**	**37,236**

ON ORDER AND UNDELIVERED

	November 1		**October 1**	**Average backlog**	
	1981	**1980**	**1981**	**1981**	**1980**
To be built new by carbuilders	16,685	53,389	19,837	30,377	78,923
To be built new in RR shops	2,146	4,554	2,015	2,882	5,486
To be built new—total	18,831	57,943	21,852	33,259	84,409
To be rebuilt	138	20	253	292	290
TOTAL ON ORDER	**18,969***	**57,963**	**22,105**	**33,551**	**84,699**
Locomotives (new and rebuilt)	184	496	228	322	870

*Due to revisions and cancellations of some orders, the November 1, 1981 backlog has been reduced by 1,134 cars.



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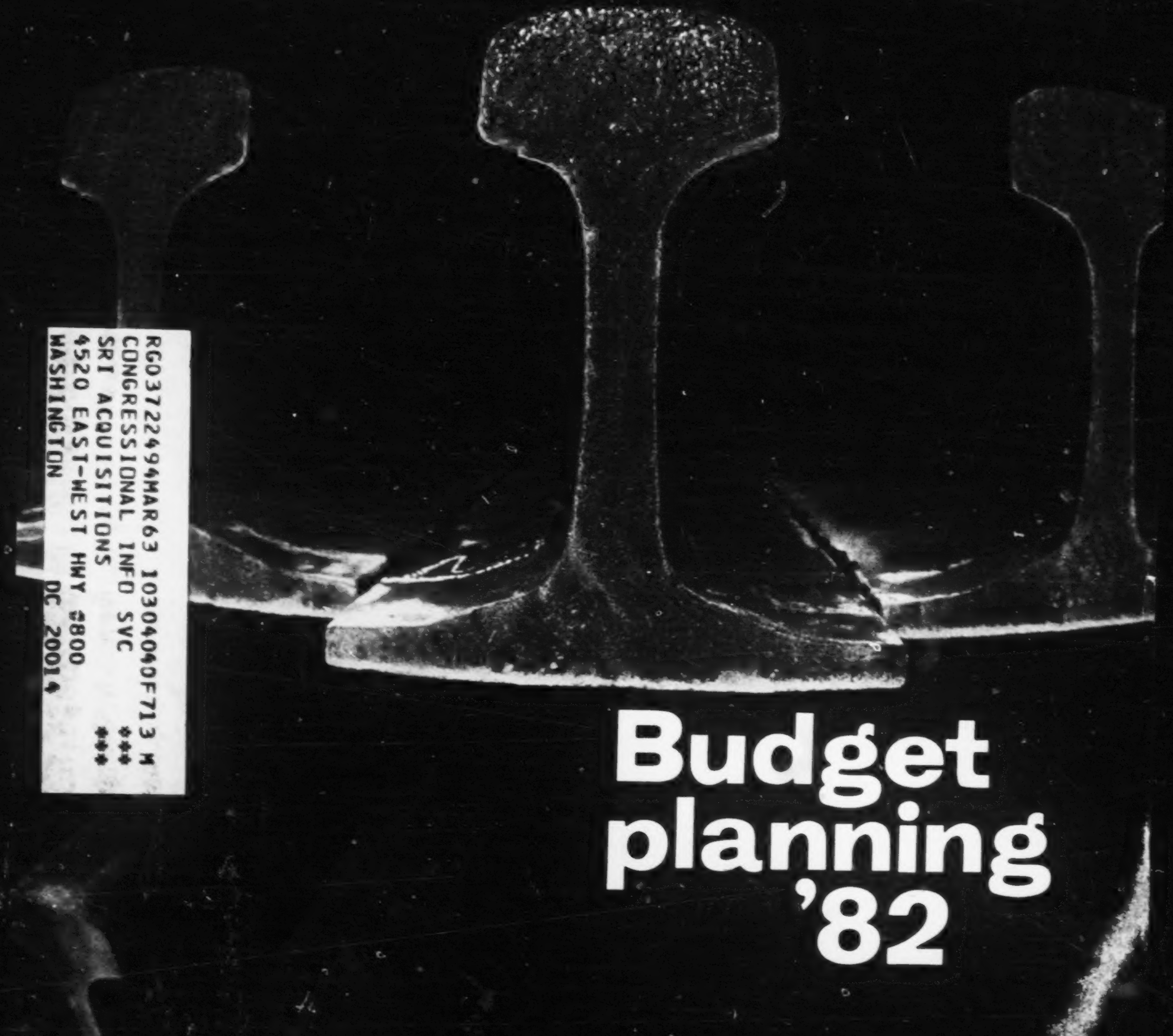
First Annual Directory of
Locomotive Repair Facilities

December 28, 1981
RAILWAY AGE



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CONGRESSIONAL INFO SVC ***
SRI ACQUISITIONS ***
4520 EAST-WEST HWY #800
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Budget planning '82

RAILWAY AGE

December 28, 1981

FEATURES

First Annual Directory of Locomotive Repair Facilities
RAILWAY AGE
Budget planning '82

Cover article, page 16

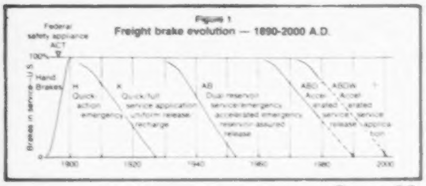
16 Budget planning '82: The emphasis shifts
Despite the traffic slump, railroads are in good shape to finance needed improvements in 1982 and most are increasing capital budgets. With equipment in ample supply, the emphasis will be on track and other fixed facilities.

24 Fuel conservation through better train control and dispatching
Reducing fuel consumption by both standing and moving locomotives is of prime importance—but more efficient dispatching, as well as modification of certain signaling practices, can also help railroads shave their oil bills.

26 Directory of Contract Locomotive Repair Shops
A *Railway Age* survey has identified 50 companies that are performing work on locomotives, on a contract basis, at 75 locations in 24 states. This first annual directory also lists ten locomotive repair facilities in Canada.

38 Freight brakes for the '80s
Associate Editor John Armstrong tackles the question: "Is freight braking progress likely to keep up with the needs of the decade, or will it be a major bottleneck in the efficient movement of the continent's freight?"

Page 24



Page 38

NEWS

10 The Rock goes to pieces—slowly
10 Banks will finance C&NW coal line
12 Treasury defends the new tax law
14 Appropriations: Who gets what

COMMENTS

3 Inside
11 Watching Washington
14 Lines on Labor

DEPARTMENTS

47 100 Years Ago
47 Advertising Sales
48 People in the News
48 Suppliers
49 Carloadings
50 Classified Advertising
51 Professional Cards
51 Guide to Advertisers
52 Products Report

COVER: Photo by Chessie Staff Photographer John B. Corns, Cleveland.

Budget planning '82

The emphasis

By GUS WELTY,
Senior Editor

If railroads follow through in 1982 with the budgets now established for capital improvements and maintenance, the industry will be in more-than-adequate shape to handle the traffic upturn that will come with the inevitable upturn in the economy.

With only a couple of exceptions, major roads will be increasing total capital expenditures over 1981 levels. With no exceptions at all, major roads with operating budgets set for '82 anticipate higher spending for both maintenance-of-equipment and maintenance-of-way-and-structures.

As in 1981, however, one area of expenditures will lag. Based on budget figures reported up to mid-December, equipment spending for most roads will be off, mainly because of the large numbers of freight cars and locomotives in storage, awaiting the return to duty that will come only as the economy improves and general-commodity traffic picks up.

When will that happen? Most forecasters are now saying after mid-year. Perhaps significantly, some analysts are looking for a sharp upturn, when it finally does come.

At that point, it's conceivable that equipment budgets could be quickly adjusted upward, though most roads are being cautious in talking now about what might happen to those budgets then.

One thing is certain: With most carbuilding plants operating well below capacity (if at all), lead-times on deliveries should be minimal, at least for those railroads first in line.

Capital Expenditures
(millions)

	1981	
	Total	**Equipment**
Burlington Northern	$346.0	$147.3
CN Rail	518.6	128.6
CP Rail	300.0	100.0
Conrail	370.0	60.0
CSX (Chessie System, Family Lines)	507.0	338.0
Missouri Pacific	290.0	195.0
Norfolk & Western	128.1	71.2
Santa Fe	272.0	161.0
Southern	300.0	172.0
Southern Pacific	200.0	60.0
Union Pacific	146.3	49.6

shifts from equipment to track

In the meantime, railroads will be spending heavily for improvements and additions to fixed plant and for maintenance of both plant and equipment. With only scattered exceptions, the rates of increase—especially for maintenance—are expected to outpace inflation, even if a 10% inflation rate is assumed for 1982 (and that's a high-side assumption, because most observers are looking for the rate to fall a point or two into single digits).

● **Patterns changing?** Historically, most railroad capital dollars have gone for equipment. But the budget numbers provided to *Railway Age* by major carriers for 1981-82 indicate that history is being rewritten.

What this will mean to equipment suppliers remains to be seen, because the market is not just cyclical—it can also be volatile, at both the low and the high points of the cycles. Cases in point:

—At its December forecast meeting, the American Railway Car Institute, looking back on a year in which only about 45,000 cars would be delivered, was looking ahead to a year that might see deliveries at plus-or-minus 35,000 units, based upon late-1981 order/backlog relationships and prospects for early-1982 orders. But the range of estimates for '82 deliveries ran from 30,000 to 50,000. For 1983, the spread was even greater. And for both years, with upwards of 20 suppliers putting forecasts onto the chart, the estimates of new-orders-placed hardly made a consensus. For example, new-order forecasts ran from 20,000 to 50,000 in 1982 and from 30,000 to more than 70,000 in '83.

—On locomotives, one late-1983 forecast saw only about 300 units being built in the United States in 1982 for domestic delivery. But when *Railway Age* asked the railroads for their 1982 locomotive-acquisition plans, just seven roads put the total higher than that, and these were the numbers: Missouri Pacific, 95 units; Southern, 64; Santa Fe, 55; Burlington Northern, 53; Norfolk & Western, 25; and Chessie System/Family Lines, 25.

—Meanwhile, back in the freight-car market, only three of the largest Class I roads were planning to acquire more than 1,000 freight cars in '82. And two, Chessie System and NW, are roads with substantial in-house car-building capability. This could indicate that, until signs of a traffic upturn become clearer and equipment begins to move out of storage, carbuilders will be scrapping for what business there is, in an industry where annual production capacity is now estimated at about 120,000 cars.

● **Road by road.** What are the biggest of the U.S. roads planning for 1982?

—Like many other roads, Burlington Northern will be cutting equipment spending while fixed-plant spending rises. Overall, BN plans capital spending of $369 million in '82 (up from $346 in '81). Equipment expenditures of $114.2 million will include acquisition of 375 freight cars, 113 trilevel auto-racks and 619 trailers, along with 53 locomotives. Plant expenditures of $254.8 million will include $65.8 million for track and roadway improvements, $58.1 million for construction of additional track and $23.8 million for installation of signal and allied equipment.

—Conrail, at this point, has no plans for acquisition of freight cars or locomotives in '82, and the dollars in its equipment capital budget reflect lease buyouts of equipment already in service. Fixed-plant spending, adding up to about $330 million, will be concentrated on "improvements which will allow us to handle existing and projected traffic levels at reduced costs while maintaining and even improving service quality." What this means is that, now that core-system facilities have been rehabilitated, Conrail will be working on secondary and feeder lines with profitable traffic levels and/or growth potential: "Coal origin lines and lines to utility plants would be just one example. Coal-related facilities, particularly those involved in export shipments, are also being improved. Signaling changes are anticipated in order to reduce costs in light of traffic levels." Conrail is also planning for additional improvements in yards and terminals and on connecting tracks to improve operational efficiency.

—Chessie System and Family Lines will be down in total capital budget but up in fixed-plant spending, from $169 million this year to $211 million in 1982. Still, these CSX railroads will be acquiring 25 new locomotives and more than 2,400 freight cars. Significantly, Chessie and Family Line, already ranking first in spending for maintenance programs ($1.050 billion for M/E this year and $815 million for M/W&S) anticipate substantial increases next year, to $1.225 billion for M/E and $955 million for MW&S.

—For Missouri Pacific, total capital spending will go from $290 million to $352 million, with fixed-plant expenditures climbing from less than $100 million

				Operating Expenses (millions)			
	1982			1981		1982	
Fixed Plant	Total	Equipment	Fixed Plant	Maintenance/ Equipment	Maintenance/Way and Structures	Maintenance/ Equipment	Maintenance/Way and Structures
$198.7	$369.0	$114.2	$254.8	$881.1	$744.1	$965.3	$843.0
390.0	600.0	117.2	482.8	647.7	371.9	710.0	420.0
200.0	300.0 - 400.0	75.0	225.0 - 325.0	380.0	227.0	443.0	258.0
310.0	425.0	95.0	330.0	720.0	705.0	730.0	720.0
169.0	467.0	256.0	211.0	1,050.0	815.0	1,225.0	955.0
95.0	352.0	112.0	241.0	429.4	306.0	480.0	362.0
56.9	185.4	79.2	106.2	235.7	275.1	298.4	308.5
111.0	271.0	148.0	123.0	514.0	383.0	N.A.	N.A.
128.0	N.A.	90.0	N.A.	247.7	208.9	N.A.	N.A.
140.0	166.0	95.0	71.0	N.A.	N.A.	N.A.	N.A.
96.7	162.7	N.A.	N.A.	414.7	338.2	471.7	388.7

in 1981 to more than $240 million in 1982. Freight-car, auto-rack and trailer acquisitions will drop, but MoPac will still be the largest acquirer of new motive power among U.S. roads, with 95 units due to come into service. MoPac will begin work on a $40-million diesel shop at North Little Rock. It will also be working on a locomotive shop at Fort Worth, on expansion of its yard at Houston, and on passing-track and yard expansions and piggyback terminal expansions at a number of points. MoPac will be laying upwards of 500 miles of continuous welded rail, and it will be one of the industry's biggest '82 buyers of track-and-roadway machines.

—Norfolk & Western is one of the few roads to budget 1982 increases for both equipment and fixed-plant spending. There will be fewer cars, but more locomotives—25 in '82 compared with just five this year. Major fixed-plant expenditures will include more than $11.9 million for rail and ballast work; $8.6 million for construction of new intermodal facilities at Landers Yard, Chicago; $3.6 million for installation of hydraulic retarders to replace inert retarders at Bellevue (Ohio) Yard; and more than $3 million systemwide for acquisition of shop and storehouse machines.

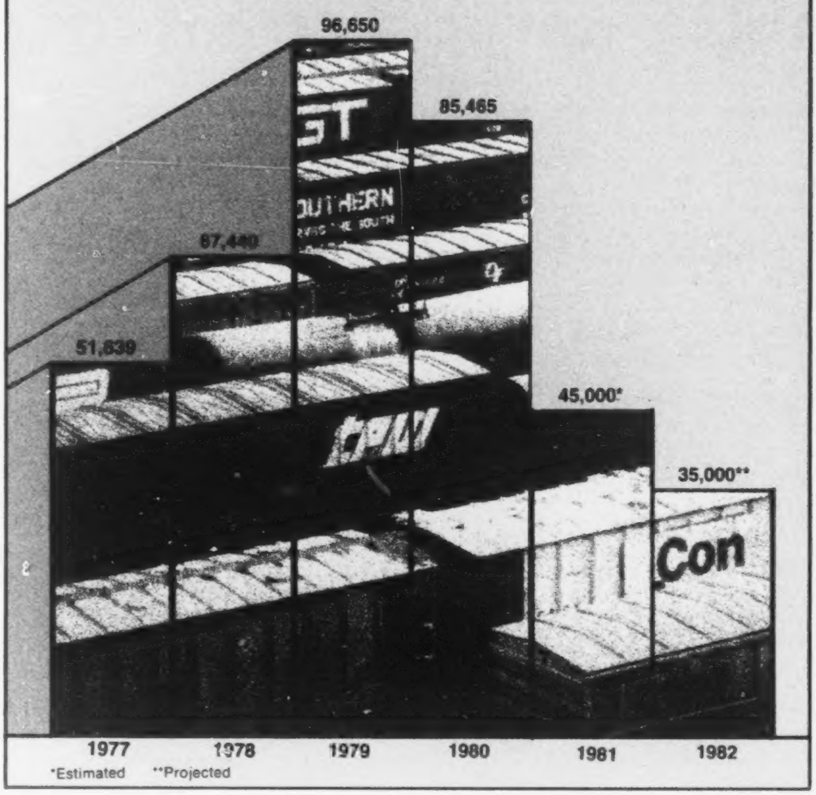
—For Santa Fe, capital spending will hold about even with 1981 levels, but with somewhat more emphasis on fixed-plant projects. Included in Santa Fe's $123 million program for property improvements and additions will be installation of 176 miles of new rail and 192 miles of relay rail; siding extensions and bridge improvements; signal improvements on 273 miles of line; purchase of 122 pieces of track/roadway equipment; expansion of intermodal facilities at six locations; and the start of multi-year projects to relocate diesel facilities at Argentine Yard (Kansas City) and at Barstow, Calif., Yard.

—Southern has announced orders for locomotives and freight cars and trailers which add up to $90 million, all for delivery in first-half '82. Southern's equipment spending this year was a little less than twice that, $172 million. Southern plans to lay 250 miles of new rail in 1982, replace 1.5 million ties, and buy $4 million worth of new track machines.

—Southern Pacific is perhaps the one capital-budgeter that marches to another drummer, with capital expenditures for equipment up and spending for fixed plant down. SP's planned total for '82: $166 million, of which $95 million will be for equipment (up from $60 million in 1981).

—With equipment plans currently on "hold," Union Pacific is still figuring on an increase in total capital expenditures, from about $146 million this year to more than $162 million next year. Included will be more than $40 million for capitalized rail/track improvements and more than $19 million for signal and communications improvements.

Freight-car deliveries



● **CN, CP: No small plans.** Then, there are the spending plans being worked on by the major Canadian roads. At this point, it would appear that CN Rail may rank first among North American roads in 1982, with CP Rail not far behind.

CN is budgeting $600 million in capital expenditures for next year, including $482.8 million for fixed plant. Roadway and terminals will get the bulk of CN's fixed-plant dollars, but there will also be $21 million for roadway machines, $12.2 million for shop improvements, $6 million for intermodal facilities and $3 million for signal and communications improvements.

CP Rail, meanwhile, is working on a budget that could run between $300 million and $400 million, depending upon whether CP gets a start on its Rogers Pass tunnel project in western Canada. It will also be spending heavily for track improvements, including installation of about 300 miles of continuous welded rail, insertion of about one million crossties and reballasting of about 300 miles of track. As for equipment, CP will be acquiring about 900 freight cars.

Those are the big roads. But they are by no means the only roads embarked on improvement programs.

Take, for instance, Chicago & North Western. This year, C&NW will spend about $251.4 million in capital improvements, divided $151.7 million for equipment and $99.7 for fixed plant. Next year, North Western drops down—to $123.2 million total, with $111.8 going for fixed plant improvements. That's going to provide 140 miles of 136-pound cwr, more than 600,000 new crossties, quite a bit of ballast, construction of new yard and connecting-track facilities, and installation of new ctc and microwave. More than $11 million will go for new roadway machines and work equipment.

Roads with smaller spending plans? They may be smaller—but they're still significant, in terms of rail-industry improvement. For example:

—Kansas City Southern spent $64.2 million for capital improvements this year, $41.8 million of that for equipment (including 619 freight cars and a dozen locomotives). In '82, KCS will be laying out a bit under $24 million—no new equipment—but its spending for property-improvements will drop only slightly, to $19.8 million. Included in that budget will be $11.6 million for a variety of track improvement projects, $2.5 million for bridge and culvert work, more than $2.1 million for shop improvements and almost $2 million for signal improvements.

—Rio Grande's capital outlays were

modest this year, just $9.1 million. But in 1982, it will be spending $30.2 million, of which $27.3 million is earmarked for fixed-plant projects. Next year, Rio Grande will lay 65 miles of new rail and 28 miles of relay, make improvements to Moffat Tunnel, build new sidings and extend others, install additional power switches and hot-box detectors, improve its ctc system, and purchase additional roadway machines and other work equipment.

—Bangor & Aroostook, still an independent in New England, will spend $4.6 million on capital improvements in '82, less than half what it spent this year. For BAR the money will buy a new diesel-servicing facility, 10 miles of cwr and 15 miles of new crushed-rock ballast, 70,000 crossties, a new piggyback ramp at Presque Isle, Me., and the rebuilding of 100 boxcars in BAR's shop.

—Bessemer & Lake Erie will acquire more new freight cars in 1982 than some far larger roads. B&LE, which budgeted close to $11.7 million for capital improvements this year and acquired 484 cars, is budgeting almost $17.5 million for next year, with 752 freight cars on its shopping list. Spending for plant improvements will also be up.

—Elgin, Joliet & Eastern will hang in just about even, 1982 compared with 1981, with total capital expenditures of more than $14.7 million. Equipment will account for more than $13.5 million of the total.

—Duluth, Missabe & Iron Range expenditures will be up substantially, mostly for fixed plant. DM&IR will have a rail program under way, but the big item will be work on a shiploading facility that will cost almost $19 million.

—Katy, which budgeted $17.7 million for capital improvements in 1981, including more than $8.3 million for equipment, will spend $13.7 million in 1982, all for plant improvements. Included will be installation of 43 miles of new 115-pound cwr and almost 31 miles of relay 112/115-pound rail, and purchase of 38 machines of various types. As for Katy's proposed electrification project, "it's in the hands of our mechanical engineer. We have made feasibility studies, and the project is still moving forward. We still have to pin down finances."

- **Taxes—and traffic.** In looking at overall railroad capital-spending plans, short- and long-range, a couple of questions remain to be answered. One has to do with the impact of tax-law changes on budget-planning. The other has to do with the industry's response to an upturn in traffic.

On the tax issue, indications are that the 1981 changes will have more effect down the line than they will on specific '82 budgets. For example, the CSX railroads, Chessie System and Family Lines, say that tax-reform had little influence on planning for next year's programs—but that the "cumulative impact over a period of years is expected to be considerable." NW notes that "because of the faster depreciation allowed under the revised law, returns on investment on all capital projects are somewhat improved. This, of course, makes investment opportunities more attractive. However, it did not change the decisions made on any significant capital projects." Santa Fe says it recognized the availability of additional tax credits, "but they have not been a major factor in our final 1982 capital program."

Conrail, on the other hand, says that tax-law changes "have permitted a relatively larger capital program." And

Riding out the storm

If carloadings take a substantial upturn in 1982, so will railroad equipment budgets. Right now, neither eventuality seems likely.

Traffic prospects for most railroads are bleak for the first two quarters of 1982. A flat third quarter is expected with an upturn becoming evident by the fourth quarter.

That is the mid-December forecast of Richard E. Briggs, executive vice president of the Association of American Railroads. Briggs expects carloadings for calendar 1982 to be around 2% below 1981 levels, although revenue ton-miles could rise by 2% due to long, heavy hauls of coal and, perhaps, grain.

Briggs finds the railroads (if not their equipment suppliers) to be in good shape for riding out heavy economic weather. "We've been through two years of national recession and our earnings have not gone down—in fact, they've improved slightly," he points out. "I don't think you can expect to see a continued improvement, but our earnings have not taken the dive they have taken in past recessions. Our cash position is stronger. We have a plant that's in damn good shape as a result of heavy trackwork and an equipment fleet that's in excellent shape as a result of five years of high acquisitions and the elimination over the last two years of the worst of the fleet. In the past we got clobbered because of our fixed costs, and when we came out of a recession and business started to build up, our financial resources were very depleted. That's not true now, and I think that's the real strength of the industry."

- **"Alarming erosion."** But while a number of factors—greater pricing flexibility, benefits accruing from the 1981 tax law, a physical plant and an equipment fleet that are in excellent condition—all indicate that railroads will come out of this slump in relatively strong shape, Briggs does not minimize the seriousness of the current traffic picture.

"Traffic is getting softer—not so that anyone can recognize huge declines, but there's a perceptible and very alarming erosion of most commodities," he told *Railway Age* in a Dec. 17 interview. "Just compare the first 39 weeks of this year with where we are after 49 weeks. There have been some modest upturns in piggyback and 'other farm products,' and grain is coming back a little, but the rest of it is weakening. That's because the economy is weakening. I think that within a month we're going to hear about 9% unemployment; I'll give you an even money bet that you may hear about 10% before the situation gets better. Interest rates are coming down, but who is going to borrow money to invest in something that's not demanded? So I look for a continuing recession, going through at least the second quarter and with no large upturn in 1982."

Coal and grain could help cushion railroads against the full effects of the recession, becuase, notes Briggs, coal and grain movements are not necessarily tied to the national economy.

"We got through 1980 by living on coal and grain," he says. "In 1981, coal is up despite a 10-week strike that shut down half the industry. Grain for most of 1981 went to hell. It has now come back a little, but we had the worst fall harvest season we've ever had in terms of the movement of grain, and exports were terrible after the first quarter. If grain comes back in 1982—and there is no reason to believe that grain will move with the economy; if it goes in the same direction it's not for the same reasons—that could help temper some of the continuing declines in other products."

Briggs expects the railroads to close out 1981 with carloadings down about 4.5% from 1980 and ton-miles just about even.

- **From highway to rail.** As Briggs points out, piggyback is one of the few relatively bright spots in the traffic picture. Early in December, intermodal traffic was running about 2.6% ahead of 1980—and it's a trend that Harry D. Gobrecht, president of the National Industrial Traffic League (and vice president-transportation and physical distribution, U.S. Gypsum) expects to continue in 1982. His own company, whose traffic now moves 10% by rail, 90% by highway, will be using piggyback more than

North Western believes that the benefits flowing through from tax-law changes "will have a direct impact in increasing our capital spending sooner and by more," even though the '82 program was set before the revisions were approved and then declines in business forced a cutback in what was originally planned.

(Tax-law changes, it should be noted, are not limited to their effect on capital projects. As Missouri Pacific points out, the tax-reforms "particularly augur well for railroad research-and-development efforts...through a provision that gives a specific tax investment credit for rail R&D." Under the new law, any increase in R&D funding by an individual road over and above the level of spending during a three-year base period qualifies for tax credit. If the project is undertaken by the railroad's own people, the tax credit is 25% of the increased spending; if the work were assigned to an outside contractor, the credit would be at a lower level, 65% of the 25%. "Obviously," says MoPac, "the railroads have an excellent incentive to increase research funding. Some of this effort may be accomplished internally, but there will also be an opportunity for joint investment by several railroads or the entire industry for research projects.")

Then, there is the matter of railroad response to improved traffic levels—response that could see equipment builders' order books begin filling up once again.

The huge numbers of locomotives and freight cars in storage constitute an inventory that will have to be worked off before there is an absolute need for additional new equipment. On the other hand, several roads indicate that they do see demand for additional specialized equipment. And, the industry has been retiring old equipment at an increasing rate: AAR figures show that in the 12 months ended Sept. 30, railroads and railroad-owned/controlled car lines retired more than 82,000 cars, about 7,200 more than were taken out of service in the preceding 12-month period.

As for the specifics on the likelihood of upward adjustment of budgets: Conrail says it has an adequate supply "of most types of equipment to meet current and projected demand. However, a sharp upturn in the economy would cause CR to re-evaluate its equipment-acquisition program." That kind of upturn would probably increase investment by such roads as Rio Grande and KCS in equipment, by KCS in additional track improvements, by Southern Pacific in the area of major facility improvements, by the CSX railroads for acquisition of more locomotives. And for a number of roads, large and small, traffic increases would, predictably, bring further increases in already-increased maintenance budgets.

What these capital and maintenance budget numbers seem to point to is a 1982 in which some parts of the beleaguered railway supply industry will fare better than others, in view of the higher numbers railroads are putting into fixed-plant improvement and the lower numbers being attached to equipment spending. At the same time, bigger budgets for both equipment and plant maintenance—even if you deduct an arbitrary 50% for the labor-expense factor—should produce additional business for a wide range of suppliers, including those in the hard-hit freight-car-component business (ironically, a business in which several major suppliers have invested heavily to increase production only to see railroads cut back sharply on purchases this year.) ■

Carloadings, 49 weeks

Commodity	1981	% change from 1980
Grain	1,287,796	−13.8
Farm products ex. grain	210,343	− 4.7
Metallic ores	1,544,179	+10.9
Coal	5,433,662	+ 0.8
Crushed stone, gravel & sand	597,828	−13.2
Nonmetallic minerals	645,793	−11.8
Grain mill products	703,134	−15.6
Food & kindred products	764,293	−13.3
Primary forest products	898,401	− 5.8
Lumber & wood products ex. furniture	381,147	−14.6
Pulp, paper & allied products	948,164	− 5.8
Chemicals & allied products	1,286,012	− 3.3
Petroleum products	255,053	− 9.3
Stone, clay & glass products	665,008	−11.8
Coke	315,238	+21.1
Metals & products ex. coke	763,177	− 1.9
Motor vehicles & equipment	778,458	− 3.7
Waste & scrap materials	584,365	− 2.1
Forwarder & shipper assn. traffic	469,553	−10.9
All other carloads	2,027,122	+ 0.3
LCL Traffic (cars)	11,291	+ 2.9
Piggyback (48 weeks)	1,580,862	+ 2.6

in the past, he says.

"That will result first of all from having reliable service, which we are seeing more and more of," says Gobrecht. Contributing to better service, he notes, have been express trains such as Milwaukee Road's "Sprint" and Illinois Central Gulf's "Slingshot". "But just as important," he says, "where railroads are taking traffic from trucks they have priced their TOFC service below truck rates."

Gobrecht applauds railroads that have extended pickup and delivery service under Plan II (rail-owned trailers), at the same time offering competitive rates. "We never were able successfully to use Plan II because pickup and delivery was largely restricted to terminal areas. Now some railroads are virtually going everywhere, and we're able to use it."

One reason for improved piggyback service has been deregulation—and Gobrecht sees deregulation as helping railroads become generally more competitive. "My company has seen an almost revolutionary change in the attitudes and approaches of railroad marketing officials," he says. "The emphasis is changing rapidly from production-oriented to marketing-oriented. We're seeing examples of this every day."

Gobrecht also sees other promising trends: New emphasis on recapturing traffic lost to competitive modes rather than to other railroads; short-term rates as incentives to move traffic immediately; reduced rates for shippers in return for increased volume; contract offerings including higher rates for guaranteed, faster or improved service, and lower rates for some types of new business; use of cars assigned to shippers for backhauls; and greater overall service reliability.

Most shippers want to see railroads do even more with their new freedoms. Says one big eastern shipper whose business is now divided almot evenly between railroads and highways: "We'll be offering fewer loads in the next few months—and those will go to the carrier that can give us service *plus* rates that will help us keep our own costs under control during these difficult times."

Freight brakes for the '80s

By JOHN ARMSTRONG,
Associate Editor

"There's one thing that selling to the railroads develops," comments an air brake executive in reviewing today's and tomorrow's prospects in the evolution of the hardware that will keep freight trains in check.

"Patience."

Indeed, the pace of innovation out on the road can seem glacial, and there are often more solutions than there are problems which can afford them. You have to look at the situation over the long pull (Fig. 1) to get some feel for today's rate of reequipping of the fleet in comparison with what has gone on before. On the same scale, of course, the dieselization of North American railroads in the late '40s and early '50s would look almost like a step function. Is a 20-25 year period "normal" for expanding usage of a new generation of brake valve to encompass the fleet, or has someone perennially dropped the ball in taking advantage of new technology? Right now, is freight braking progress likely to keep up with the needs of the decade or will it be a major bottleneck in the efficient movement of the continent's freight?

Much if not most of the responsibility for the past, present and prospective rate of change in freight braking technology comes from the philosophy, dating from the Master Car Builders standards of 1887, that new systems or components must interchange freely with (and, if anything, enhance the overall performance of) their predecessors as they are introduced, car by car, in the general-service pool. Does this idea still work or is it unaffordably incompatible with everything from new work rules, service demands, and such technical possibilities as microprocessors?

Well, for one thing you can say immediately that it at least calms things down to the extent that it's possible to have some idea of what's going on. Passenger-train and rapid-transit braking, largely freed from "interchange" standardization requirements and with electrical power available, now represent such a thicket of possibilities and implementations that suppliers in the field are hard put to keep track of even their own developments and product lines as difficult customers select, assemble, and tinker with individualistic solutions.

● **Some things won't change.** A thoughtful review of prospects for the next decade was presented by WABCO's David G. Blaine, MoPac's Mark Hengel and WABCO Canada's Harvey Peterson in a recent ASME paper putting train brake requirements in terms of handling projected tonnages within available track capacity. *(Train Brake and Track Capacity Requirements for the '80s, ASME 81-RT-11.)* The 1990 freight train, it predicts, must be at least as long as today's (and heavier, since most cars will be 100-tonners by then) simply because most routes will remain single track and there is no other way to move the tonnage other than by handling it in massive consists moving from siding to siding under the protection of block signaling spaced to match train stopping characteristics.

Foreseeing no change in maximum allowable speeds as codified by Federal law, this analysis assumes 40 to 60 mph over the road running by most trains, perhaps with some expedited 70-79 mph trains of lesser tonnage mixed in to meet service requirements warranting the higher fuel consumption.

Fleet size is seen as expanding moderately with up to about 20% improvement in utilization despite the fact that general-service cars will continue to spend a lot of time in yards. With general acceptance of the idea that 263,000 pounds on four axles will remain as a practical limit, "100 ton" car design is seen as continuing to work in the direction of more and more lading, less and less tare (to as low as 40,000 pounds) within the same gross.

● **The ABDW can hack it.** A reasonable projection shows 50% of the fleet equipped with ABDW brake control valves by 1990 since all cars ordered after Jan. 1, 1977, have been so equipped. With its accelerated service application function using serial action to speed up brake pipe reductions and brake cylinder pressure build up throughout long consists, the ABDW will maintain the same stopping distance (Fig. 2) with 12% to 30% longer *or* 12% to 30% heavier (average tonnage per car) consists at the same road speeds and with similar train dynamics. With intermixed ABDW's enhancing overall train performance proportionally, track capacity will in effect grow steadily during the changeover period, for routes over which most traffic moves in consists of cars of varied vintage and lading.

So, at least in theory, the current standard braking system should manage to keep up with demand—though with little margin. Fuel cost considerations will tend to favor making use of the enhanced braking capacity by lengthening rather than speeding up trains, putting downward pressure on overall car utilization. Is this all that's going on in the braking business to prevent a possible crunch if things don't work out almost precisely as calculated?

● **Keeping them out of the shop.** Car utilization is also a matter of keeping them on the road and away from the shop or rip track. On the basis of a 13-railroad survey reported in the ASME paper, air brakes and related equipment led all categories of repair in frequency, accounting for 20% of the total; wheelset work—some of which is also related to brake performance—is involved in 15.5% of repair incidents. The money involved in brake work (Table I) is likewise impressive. Longer-lived brake shoes are obviously important.

Among the other categories, a significant shift has occurred as the scheduled COT&S interval for brake valves has been lengthened from the 12-month standard maintained over the first 60 years or so of the power-brake era. Diaphragms, O-rings and spool valves replacing piston ring and slide valve designs in the AC/ABD evolution of the 1950's have led to its extension to the present 16-year standard for ABD and ABDW systems and to 96 months for AB's. With such guinea-pig car sets of the current technology as the 200 on the Norfolk & Western still going strong after an even longer history, it's considered likely that time-interval COT&S itself will phase out with the older valves in the near future.

Confirming valve reliability over these long periods of time is the in-date testing program in effect for about 30 years which requires that every car undergoing repairs of any kind receive a full single-car air brake test if it has been over 90 days since its previous stenciled IDT or COT date.

Current IDT results reported are illuminating:

—Moderate to high utilization cars receive an IDT about twice a year on the average. About 95% pass.

—About 95% of the IDT failures are for leakage in the brake piping, fittings, hoses or angle cocks.

—Most of the remaining failures are represented by brake cylinder or valve leakage. Foreign material ingested is responsible for the majority of vent valve problems; this in turn is attributed to uncoupled brake hoses dragged through piles of lading, since corn kernels, wood chips, plastic pellets and other light fragments are the principal items found jamming the works.

—Only about 1% of cars failing IDT have identifiable internal valve deficiencies.

With the present mix of AB, ABD and ABDW valves in service the reported

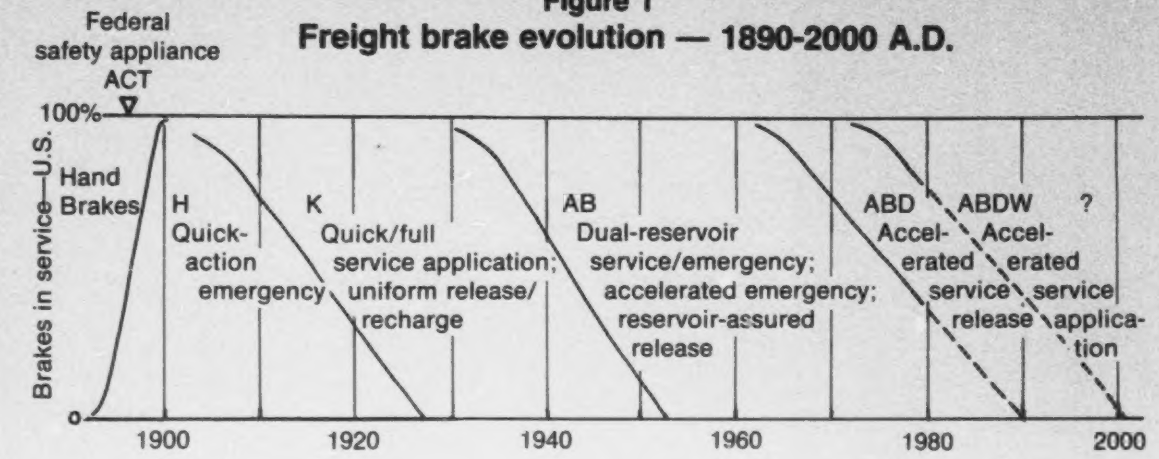


Figure 1
Freight brake evolution — 1890-2000 A.D.

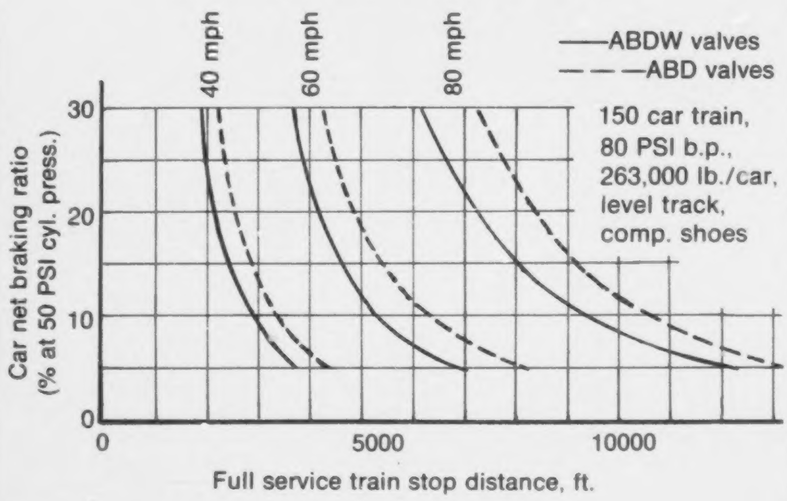


Figure 2
ABDW vs ABD stop distances

Data source: ASME 81-RT-11

rate at which cars have to be cleaned because of inoperative brakes averages from 1.8% to 2.2% per year, "indicating a nominal product life of about 25 years." Considered prime candidates for major improvement are the mundane but expensively vulnerable end-of-car hardware items; long-overhang cars with their long-shank couplers need a solution to the problem—"as yet practically unsolved"—of coupler pass-by during attempted yard couplings.

● **Improving on perfection.** In the design and manufacture of the most complex portions of the system there's a new kid on the block. With conditional AAR approval for up to 7,500 car sets in interchange service, Britain's Westinghouse Brake and Signal Co. (itself now a Hawker-Siddeley subsidiary) has entered the North American market with its new Westcode, Inc. plant in Frazer, Pa. Its entry: the Z1AW brake valve, an alodined-aluminum-alloy unit fully interchangeable with the basically cast-iron ABDW valves made by New York Air Brake and WABCO.

Westinghouse Brake & Signal's development of long-life, low-maintenance brake components for European service in the 1950's took a somewhat different path. As in the North American systems, slide valves and piston rings went out, but for the P4A graduated-release control valve the U.K. design went in the direction of soft-seat poppet valves and flat diaphragms instead of spool valves. Permanent-mold and die castings, bypassing the problem of keeping core sand out of the finished product, also were adopted. As in the case of the ABD's and successors, improved performance via smaller and more reproducible actuating-pressure differentials figured in the new valves.

Getting into the American market is no casual matter (Westcode has a 150-car test rack at its new plant, built in support of the process of securing approval for service), even though unmachined castings and some other parts are purchased rather than made from scratch in-house. Westcode's Z1AW is 49 pounds lighter than its counterparts—no huge deal right now, perhaps, but a step in the right direction (along with aluminum alloy reservoirs, now in experimental service) in anticipation of increasing interest in weight saving in every component as pressure for low-tare cars heats up. Conceding that the difference between a valve that will last 20 or 25 years (or whatever the life of an ABDW actually is) and one that by all indications will last even longer may be rather academic, Westcode sees manufacturing, lubrication stability, precision performance and other benefits of its design principles sufficient to make its entry a tough competitor over the long pull. Catching the U.S. market at the low, low point of its cycle was not exactly part of the game plan, of course, but Westcode (now set up to do all new development work for the American market, including such items as a light-weight relay valve, at the new plant) has never considered the new venture to be a short-term proposition.

● **Is air quick enough?** Does a system which takes 13 seconds to begin to apply braking pressure to the 150th car of a train and 70 seconds to reach full service pressure—as the ABDW does under typical conditions—seem incompatibly slow with present operational requirements when electricity has been around for so long? Slack control is a primary concern in the very complex business of track-train dynamics; electro-pneumatic brakes have a long history on passenger trains—particularly in European practice; and elaborate digital techniques for verifying and responding to the status of wire, inductive or radio communication/control links are duck soup with microprocessors and all those other good solid-state things.

Most telling of seven classes of obstacles cited as facing widespread, cost-effective application of simultaneous braking on freight trains of American length and tonnage is probably the fact that (to borrow signaling terms) train braking must be a *vital* function, with energy sufficient to stop the train present throughout the consist before it is allowed to proceed. "While it is possible to make an electric or electronic brake vital, circuit continuity and attenuation problems would make it very difficult to get trains out of the yard and to reliably continue over the road. Any electric or electronic brake requires an automatic air brake back-up system to be at least as reliable as the present AB-ABD-ABDW brake," is the way ASME 81-RT-11 puts it.

As if to emphasize the matter, the current decade started off with two of the most spectacular and costly runaway accidents in history. Neither represented a failure of today's braking systems if maintained, tested and operated strictly by the book to keep train speed within limits, but gravity's capabilities in generating enough energy to total an entire 80-car consist and in accelerating loaded cars to 118 mph were vividly reaffirmed. The muscle for stopping, come what may, must be on the cars, and in practice that means compessed air. But what price is paid for less than instant response?

FRA reportable damage totals for brake-related train accidents (Table II) set some bounds on the problem. Actual costs of these accidents are higher than indicated, since only damage to railroad equipment and roadway is included, and such effects as flat wheels resulting from undesired emergency applications where everything stays on the track and less than the threshold damage ($2,900 in 1980) for classification as a train accident is incurred don't show up at all.

Nevertheless, it's apparent from these figures that *over-the-road braking-dynamics deficiencies* are not one of the principal items of accident damage. Considering that the "interaction of lateral/vertical forces" catchall includes tractive force application problems as well as braking reactions and *their* interactions, a fair guess might be that 2% to 3% of all train-accident damage is attributable to this factor. The relative importance of making sure that nobody skimps on setting handbrakes is striking.

Much of the complexity of today's brake valves arises from the service-demonstrated necessity to control the rate of transmission, charging, application, release, venting and other functions, often in two or more stages, through ingenious and subtle tinkering with volumes and orifices. Increasingly, the satisfactory handling of long trains over difficult undulating or steep profiles depends on putting the insights developed by computerized train-dynamics analysis into procedures, instructions and training programs that govern the way the locomotive engineer handles his handles. Overall, the job does get done, with hardware that is expensive but affordable, complex but increasingly maintainable, imperfect but certainly usable.

● Empty and load—again...and again. A narrow-gauge electric railroad that carried swarms of passengers around the ground of the World's Columbian Exposition in Chicago in 1893 had an empty/

Table 1
Major brake component AAR repair billings

ITEM	No./Car/Yr.	$ Charges/Yr.	
		$/Car	Fleet total $
Brake shoe/key replacement	11.60	$156.96	$266,800,000
In-date test (IDT&S)	1.08	31.87	54,200,000
End & intermediate hoses	.74	15.77	26,800,000
Brake beams & rigging	.25	15.54	26,400,000
Clean, oil, test (COT&S)	.14	7.82	13,200,000
Hand brakes, bell cranks	.08	5.37	9,100,000
Release, relay, vent valve repl.	.07	4.59	7,800,000
Valve portion, reservoir, etc., repl.	.07	4.21	7,200,000
Angle cock replacement	.12	3.49	5,900,000
Automatic slack adjuster repl.	.014	2.96	5,030,000
Total brake system		**$253.53**	**$431,000,000**

Data from ASME 81-RT-11
Fleet total billings based on 1,700,000 cars

Table II
Brake-related train accidents & reportable damage 1980

	Accidents	Damage
Mechanical Failures		
Rigging down or dragging	56	$1,774,000
Air hose uncoupled or burst	29	1,070,000
Brake pipe or connections	11	780,000
Undesired emergency application	6	455,000
All other brake components — car	18	340,000
All other brake failures	67	1,079,000
Total, brake	**187**	**5,498,000**
Human factors		
Non-/Misuse of handbrake	265	6,760,000
Improper use - automatic air brake	20	965,000
Improper use - independent air brake	22	510,000
Improper use - dynamic brake	6	245,000
All other brake usage	30	867,000
Total, use of brakes	**343**	**9,347,000**
Miscellaneous		
Interaction of lateral/vertical forces (including all causes - power, braking & combinations)	162	7,283,000
Emergency brake: appl. to avoid accident	15	439,000

Data from FRA accident/incident Bulletin No. 149
Total train accidents from all causes = 8451
Total reportable damage (roadway & equipment) = $273,905,000

load braking system which used two cylinders to vary shoe forces in accordance with the status of each car's patronage. Manually-set KDEL empty/load braking for freight equipment became available in the 1910 era. By 1925 this was superseded by a system which was set manually to activate the second (load) brake cylinder but automatically returned to the empty braking level.

In 1980, 96% of all cars in a sampling of typical freight consists had brakes which apply the same retarding force to their wheels whether they are loaded to the limit or empty. Clearly, empty/load braking has had a great future for over eight decades. Must it continue to have a great future on into eternity?

The physics is simple—cars in a train braked at different ratios will slow down at correspondingly different rates until they run into each other and reach some sort of compromise. AAR standards and recommended practices call for a minimum braking ratio (composition shoes) of 6.5% of gross rail load (GRL) at the 50 psi cylinder pressure which represents full service braking with the minimum legal brake-pipe charging pressure of 70 psi. As Fig. 2 illustrates, stopping distances increase rapidly as braking ratios for a whole train get down into this range.

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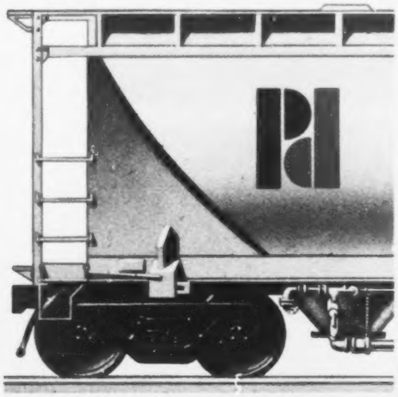

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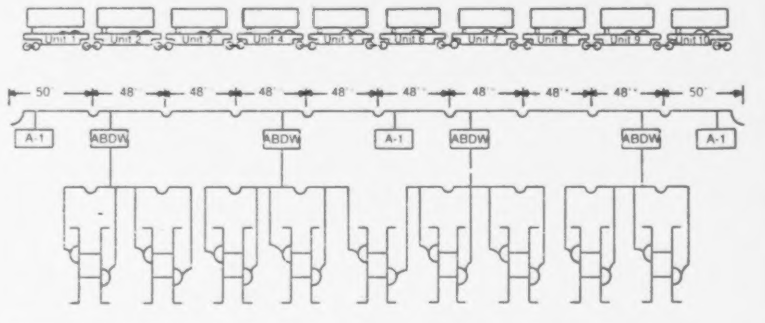
Figure 3
Truck-mounted brake assemblies



*Approximate brake pipe length

It takes 4% to 5% of additional braking ratio to balance the effect of a 2% descending grade.

On the other end of the spectrum, empty-car braking ratios are restricted to 30% under the same conditions to prevent excessive certainties of wheel sliding under emergency braking at typical speeds and brake pipe pressures.

The effect of these limits is to require that a 100-ton capacity car (263,000 GRL) with a light weight less 6.5/30ths of that (57,000 pounds) must be equipped with empty/load braking, and that good a tare weight ratio is being achieved by more and more cars as the economics and technology of car design push in that direction.

How much of a problem is this fancier braking? Thirty or 40 years ago when relatively light weight 90-ton cars began to appear, the required braking force did strain shoes and rigging, and considerable numbers of cars were E/L braked with relatively complex two-cylinder or dual-diameter-cylinder systems. By now these could feel truck spring deflection well enough to set themselves as cars were loaded and unloaded.

Development of high-friction composition brake shoes which provided better speed vs. friction characteristics as well as doing the job with lower piston and rigging forces made it possible to meet the conditions of the time without the E/L gear, and off it came in a good many cases.

What's the prognosis now?

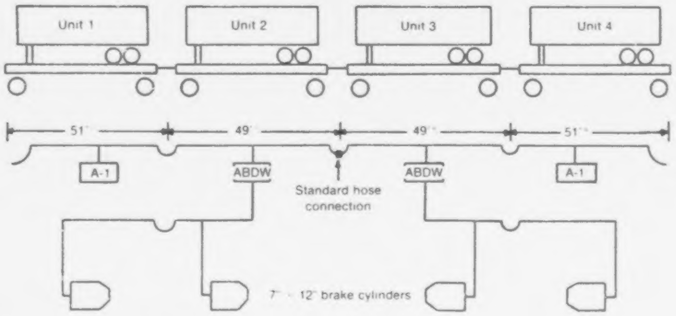
- **More and better choices.** The brake people have been busy, providing a choice of ways of doing the job at price differentials (compared with single-level braking) representing a considerably lower fraction of brake system or car cost than the dual-cylinder systems of the previous go-around.

—American SAB manufactures an adaptation of an adjustable-leverage system which has been in use in Europe for over 20 years and is found on about 1,500,000 cars there. Air tapped from the emergency reservoir flows through an on-truck change-over valve (if spring deflection indicates that the car is loaded) to an empty-load box; this disconnects a fulcrum rod in the foundation rigging which serves in the empty car as the pivot determining the braking ratio. This in turn allows an alternate fulcrum rod to take over, increasing the braking force in accordance with the geometry determined by the lever proportions. Some 2,000 car sets are in service on this side of the ocean under AAR conditional approval; it's a relatively simple, proven system but not adaptable to truck-mounted braking or readily standardized for widespread American application.

—Ellcon-National's 6200-Series fixed-displacement empty-load system uses the weight of the lading in a bulk-commodity car to close a valve which shuts off a chamber normally connected directly to the brake cylinder; the resulting increase in cylinder pressure corresponding to a given brake pipe reduction correspondingly increases effective braking force when the car is loaded. Several thousand are in service, also under AAR conditional approval. The Ellcon-National 4900-Series system is a more elaborate (and less widely used) unit in which truck spring deflection decreases the chamber volume proportionally, providing braking power varying between empty and load-limit ratios if the car is loaded with commodities of different density.

—WABCO and New York Air Brake supply the standardized SC-1 empty-load system, developed in the early 1970's. On a loaded car, full brake cylinder pressure is developed; when the car is empty, reduced truck spring deflection is sensed

Figure 4
Foundation rigging



*Approximate brake pipe length

by an arm on a sensor valve which activates a proportional valve which regulates brake cylinder pressure to a fixed percentage (usually 60%) of that called for by the brake valve system. Universally applicable in well-standardized form but somewhat more complex, the SC-1 system currently adds about $415 to the price of a car.

● **Is 6½% enough?** The 6½% loaded/30% empty standard allows most general-service cars to go into interchange without empty/load braking, and that's exactly what most of them have been doing. Improved train handling which would result from having more uniform response throughout mixed consists is an ideal which isn't often perceived as bringing tangible benefits to the car owner matching the extra cost.

In unit train service where all cars in a train are either empty or loaded, the matter of uniform response doesn't arise, and some of the effect of empty/load brakes can be achieved by varying the brake pipe pressure. In this service a railroad's attitude tends to vary quite predictably with its terrain. Lowering a train down a long grade with an adequate reserve of service braking (usually considered 100% above that required to "balance the grade" with air brakes alone) to be able to bring the train to a stop in a satisfactory distance quickly passes the limit of 6½% braking ratio as the grade steepens; at 2.0%, this margin requires an average braking ratio of 9.0%, at 3.0%, 15% under typical curvature conditions. For loaded unit trains, with no empties or light loads to bring down the average tons per operative brake, the situation is not at all academic.

Confronted with the uniquely extreme situation of bringing tonnage down the 4.7% of Saluda (N.C.) grade safely, Southern looked at requirements carefully and decided as a matter of policy that it must aim for at least 9% net braking ratio (calculated at the standard 50 psi brake cylinder pressure) for all its equipment. As a result, it has been buying empty/load braking for all its 100-ton and heavier cars (some are loaded to 286,000 pounds GRL); in Canada, Canadian Pacific is also leading the way toward standard braking levels in this range in deference to its long descending grades now carrying line-saturating tonnages of bulk coal, grain, potash and sulfur.

How *does* Southern get a train down Saluda? Its brake pipe charged to 100 psi, all retainers set up and all brakes operative, a carefully orchestrated cycling of automatic air, dynamic and independent braking (initiated immediately as the train eases onto the grade) keeps speed from rising above the 12 mph at which there is still assured reservoir capacity and charge for an emergency stop.

With 100-ton capacity cars (typically those types carrying commodities which load to the full GRL limit) becoming a majority in the North American fleet well before 1990, there is growing belief in the air brake community that net braking levels must rise, probably to 8% at the 50 psi reference. This will in turn require empty/load equipment for all light weights up to 70,100 pounds for the 100-tonners and 58,700 pounds for the remaining 70-ton (220,000-pound GRL) cars. Since many of the 70-ton cars are those whose lading loads to cube rather than weight, an alternative suggestion would leave their minimum braking ratio at 6.5% of the nominal GRL; the overall effect in a mixed consist with the empty/load braked 100-ton cars could be somewhat more uniform.

In any event, some change in ratio will occur. *When* remains a good question.

● **Still burning up wheels?** Isn't it archaic to expect those ever more heavily burdened wheels to serve as brake drums? Maybe—until you look at the alternative. The freight car center sill has effectively pre-empted the territory which would be needed for braking discs and caliper rigging of adequate thermal capacity. From a practical standpoint, braking is going to continue to help wear out most freight car wheels.

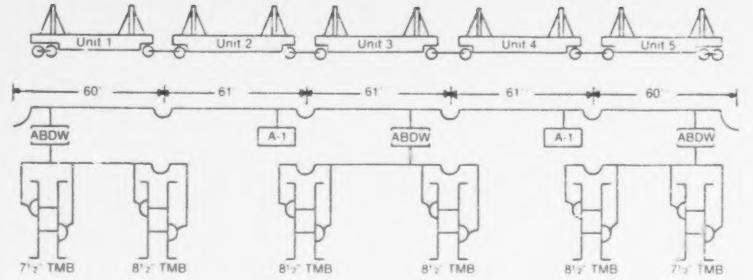
The sensitivity of railroad preferences to fairly small cost differentials and trade-offs is evident in the continuing saga of truck-mounted brake cylinders vs. the standard "foundation rigging" with its single body-mounted cylinder and collection of links and levers. The WABCOPAC and NYCOPAC systems have been around for twenty years, long enough to establish that the better balanced application of force to their brake beams does reduce wheel wear significantly. For low-slung cars where foundation rigging is impractical they're a must; for other applications the option is open, with some cost differential (hard to pin down precisely, since extra brake equipment quotations are accompanied by reduced carbody component and installation costs, but in the $100-200 per car range) in favor of the body-mounted rigging. Current installations are running about 12-15% truck-mounted, with those railroads that expect their cars to spend enough time in the braking mode on long grades to pay back the differential in wheel-wear savings going for the truck-mounted brakes—if necessary accepting in turn some additional complication in providing hand-brake rigging at both ends of the car to meet desired braking levels in that respect.

If the dominant car in 1990 is still going to be a 263,000-pound eight-wheeler with a hose sticking out each end and shoes rubbing on its wheels when an ABDW-type valve so directs, the ferment in special-purpose car design is sufficient to suggest that a lot of cars and trains—particularly in intermodal service—will have departed considerably from that norm. Both articulated and single-axle-truck cars are coming on line in numbers that go well beyond the experimental. Is this going to be a problem for brake-system designers?

A recent Air Brake Association paper by WABCO's Harry Weber and John Novotny suggests that it's more of an opportunity for clever adaptation than a crisis. The essential parts are there (as, given the railroads' demonstrated dislike for anything not already in the logistic pipeline, they'd better be) and it's up to the designer to find ways to put them together to do the job, which is complicated principally by a few considerations:

—Articulated cars typically carry almost twice as much weight on their mid-car trucks as on each end truck. This may require a proportioning valve if

Figure 5



*Approximate brake pipe length

some arrangement of standard cylinder sizes won't provide braking force distribution to match.

—Obtaining the weight reduction and overall equipment simplification benefits that come from reducing the number of trucks to carry the load may result in long brake-pipe spans between control valves.

—Running hand-brake connections across "joints" between car units is messy.

Air brake engineers have become used to thinking in terms of brake pipe length rather than simply numbers of freight cars ever since the very long piggyback, hi-cube and rack cars entered the picture, so a variety of vent and reduction relays valves have been developed which in effect make long cars respond to service and emergency brake signals in a fashion equivalent to that of a similar-length string of 50-footers. For the new-era combinations, it's a matter of following the rules.

Fig. 3 shows how the longest current assemblage of units, the Santa Fe 10-unit "Fuel Foiler," is braked. Note that there is no power braking on the two end trucks; the AAR required net braking ratio can be met without retardation applied to these lightly-loaded trucks, thus eliminating the need for proportioning valves.

Trailer-Train's 4-Runner cars use the arrangement shown on Fig. 4. Foundation rigging on each unit is actuated by a single 7-inch cylinder so no brake connections need cross between units; to the ABDW valves, the two 7-inch cylinders look like a single standard 10-inch cylinder. The Southern Pacific/ACF "Double-Stack" container car uses the arrangement of Fig. 5. Mixing standard 8½-inch and 7½-inch cylinders stays within braking level limits for the overall car and for both end and inboard trucks without the use of proportioning valves in the case of this five-unit car.

● **Winter fun and games.** Should articulated or other multi-unit car concepts become a major part of the fleet, additional advantages beyond weight reduction can be expected, including slack reduction and—as Duluth, Missabe & Iron Range's "Mini-Quad" aggregations of four permanently-coupled ore cars have been demonstrating for ten years—reduced brake pipe leakage allowing unimpeded full-train operation throughout the cold season.

The requirement of welded brake pipe assemblies which went into effect in 1972 is generally agreed to have done wonders in effecting steady improvement in brake system performance; nibbling away at the overall problem of maintaining operations in bad weather has taken many forms, including improvements in the single-car test requirements and procedures.

Can measuring the rate of air flow into the brake pipe necessary to maintain its pressure be used (in addition to the existing 15 psi limitation on overall pressure gradient between engine and rear car) instead of the "5 psi per minute leakage" criterion to qualify a train for leaving its terminal? This procedure, which particularly expedites establishing the length of consist which can be handled with pressure-maintaining brake equipment in extreme weather, has been under test for three years in Canada—to the extent of over a million initial and intermediate terminal tests. Tests on the Soo Line and Duluth, Winnipeg & Pacific under FRA/AAR waiver are beginning in the United States. This "Air Flow Method," which uses the air flow meter on the locomotive control stand already in long use on many railroads, also monitors any change in the brake pipe leakage occurring during the run. Will it become standard? Quite possibly, but not for a while yet. ■

Guilt by association: Catching dynamiters

A long-time problem in railroading is the "dynamiter"—a car whose brake valve for some reason goes into emergency during a service application and brings the train anonymously to a sometimes damaging or even catastrophic (and always delaying) halt. With modern electronic timing and pressure-sensing instrumentation it has been demonstrated that calculations from the time of arrival of the shock wave in the brake pipe at the ends of the train can determine the point of origin of the emergency application well within one car length, nailing the culprit. A prototype system based on Southern Pacific work some years ago has been built and three more units for service testing authorized; a system working on the same phenomenon has been developed at the Transportation Test Center and is in use on the FAST train at Pueblo.

Elsewhere, finding the dynamiter in a consist brought to a halt by an emergency application arising from no evident cause (a burst or disconnected airhose, for example) has been a matter of repeated brake tests on divided portions of the train, with Murphy's Law dictating that the last car tested will turn out to be the villain.

To improve the odds using available computer and communication capabilities, SP established a UDE (undesired emergency) Repeater program working within its TOPS system. Whenever an emergency application with no identifiable source occurs, *all* cars in the consist are entered from TOPS into the UDE Repeater program's memory. Any individual car that shows up for the fourth time will have its air system cleaned and all valves rack-tested. Experience has indicated that 80% of four-time repeaters did in fact have some problems, either failing rack tests or showing some anomalies on tear-down inspection that could cause a UDE on occasion, although most had passed single-car tests.

When a train experiences a UDE, any of SP's numerous TOPs-equipped terminals can immediately obtain the UDE history of every car in its consist; in about 60% of the cases, the offender has been found within the list of cars with some previous association with the problem and the search has been immediately narrowed.

The UDE Repeater program also spotlighted a particular series of cars which upon examination turned out to have incorrectly drilled vent-valve orifices (from a systematic error in a contract-overhaul program); a related SP program accumulating data on air hose separations located particular long-car hose support arrangements which were prime offenders, leading to a modification/inspection program reducing the incidence of such events.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Dec. 5 totaled 396,173 cars, according to the Association of American Railroads. This was a decrease of 51,598 cars, or 11.5%, compared with the corresponding week last year, but 19.0% higher than the preceding Thanksgiving Day week of this year. Ton-miles generated by carloadings in the week ended Dec. 5 are estimated at 17.1 billion, a decrease of 10.2% below the corresponding week of 1980.

REVENUE FREIGHT CARLOADINGS

Commodity	Dec. 5 week	Nov. 28 week
Grain	25,231	21,722
Other farm products	5,344	5,246
Metallic ores	26,075	18,632
Coal	121,701	105,940
Crushed stone, gravel & sand	9,981	7,507
Nonmetallic minerals	10,941	7,175
Grain mill products	12,456	11,103
Food & kindred products	14,449	12,564
Primary forest products	17,773	12,667
Lumber & wood products (except furniture)	5,853	4,518
Pulp, paper & allied products	18,642	17,182
Chemicals & allied products	23,234	20,112
Petroleum products	5,240	4,441
Stone, clay & glass products	10,998	9,193
Coke	6,136	5,269
Metals & products	12,154	10,512
Motor vehicles & equipment	13,012	10,512
Waste & scrap materials	9,280	7,630
Forwarder & shipper assn. traffic	8,363	7,467
All other carloads	39,125	33,248
LCL traffic	185	162
Total Cars Loaded	**396,173**	**332,802**
Cumulative total,	1981	1980
49 weeks	**20,570,017**	**21,406,539**
Estimated revenue ton-miles (billions), 49 weeks	**869.7**	**868.0**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Nov. 28 totaled 27,998 cars (4.8% above the corresponding 1980 week) and 50,969 trailers or containers (up 6.8% from 1980). Cumulative volume for the first 48 weeks of 1981 is 1,580,862 cars (up 2.6% from 1980) and 2,871,712 trailers or containers (up 2.7% from 1980).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Nov. 21 totaled 5.4 million tons (up 2.4% from 1980). Cars loaded totaled 75,015 (down 3.3% from 1980). Cumulative loadings for 1981 were up 227.4 million tons (down 3.6% from 1980).

- *Bangladesh.*—Awarded contracts worth $17.5 million to Bombardier-MLW for the supply of 12 new 2,400-hp diesel-electrics and the refurbishing of seven existing units.

- *CP Rail.*—Ordered 300 track miles of rail valued at $40 million from Algoma Steel Corp. Approximately 81,000 39-foot lengths of rail will be joined into quarter-mile-long sections of cwr at CP's welding plants at Transcona, Man., and Smith Falls, Ont., for installation throughout the system in 1982.

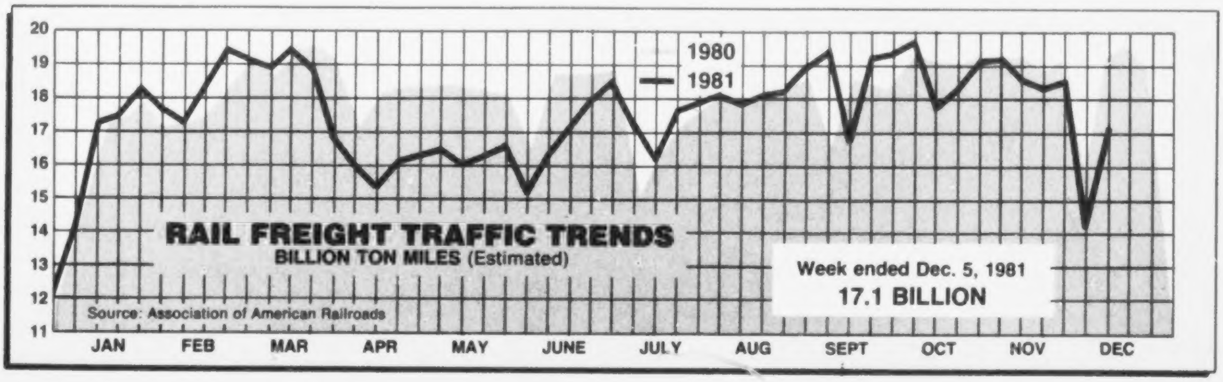
- *Central Louisiana Electric Co.*—Awarded a five-year contract to PLM Railcar Maintenance Co. for the maintenance of 253 unit train coal cars at PLM's Alliance, Neb., facility.

- *General Railway Signal.*—Awarded a $525,150 contract to Infrared Industries of Waltham, Mass., for the manufacture of Infratron Radiometers, detection devices that are used as part of GRS's Wheel Thermo-Scanner units.

- *Minnesota DOT.*—Awarded a contract to Exide Industrial Battery Division of ESB, Inc., for supply of a photovoltaic solar energy cell and lead acid storage battery for Minnesota's first solar-powered crossing signals (*RA*, Nov. 30, p. 4).

- *New Jersey Department of Transportation.*—Awarded a $30.4-million contract to a joint venture of The L.E. Myers Co. and L.K. Comstock & Company Inc. for conversion, extension and rehabilitation of electrified Erie Lakawanna rail lines in northern New Jersey. Contract covers lines between Summit and West End, near Hoboken, N.J., the final section to be awarded in the conversion from 3,000 volt DC to 27.6 KV AC. Starting next spring, work will be completed by December 1982.

- *Pakistan Railways.*—Placed a $27.8-million order with the Rail and Diesel Products Division of Bombardier for the rebuilding and upgrading of 42 diesel-electric locomotives. Bombardier is to supply 24 complete engines, rebuild components and technical support services. Shipments of the first rebuild kits from Montreal to Pakistan, where the locomotives will be rebuilt by local labor, will start within one year. Bombardier previously assisted Pakistan in the rebuilding of 51 locomotives.



Source: Association of American Railroads

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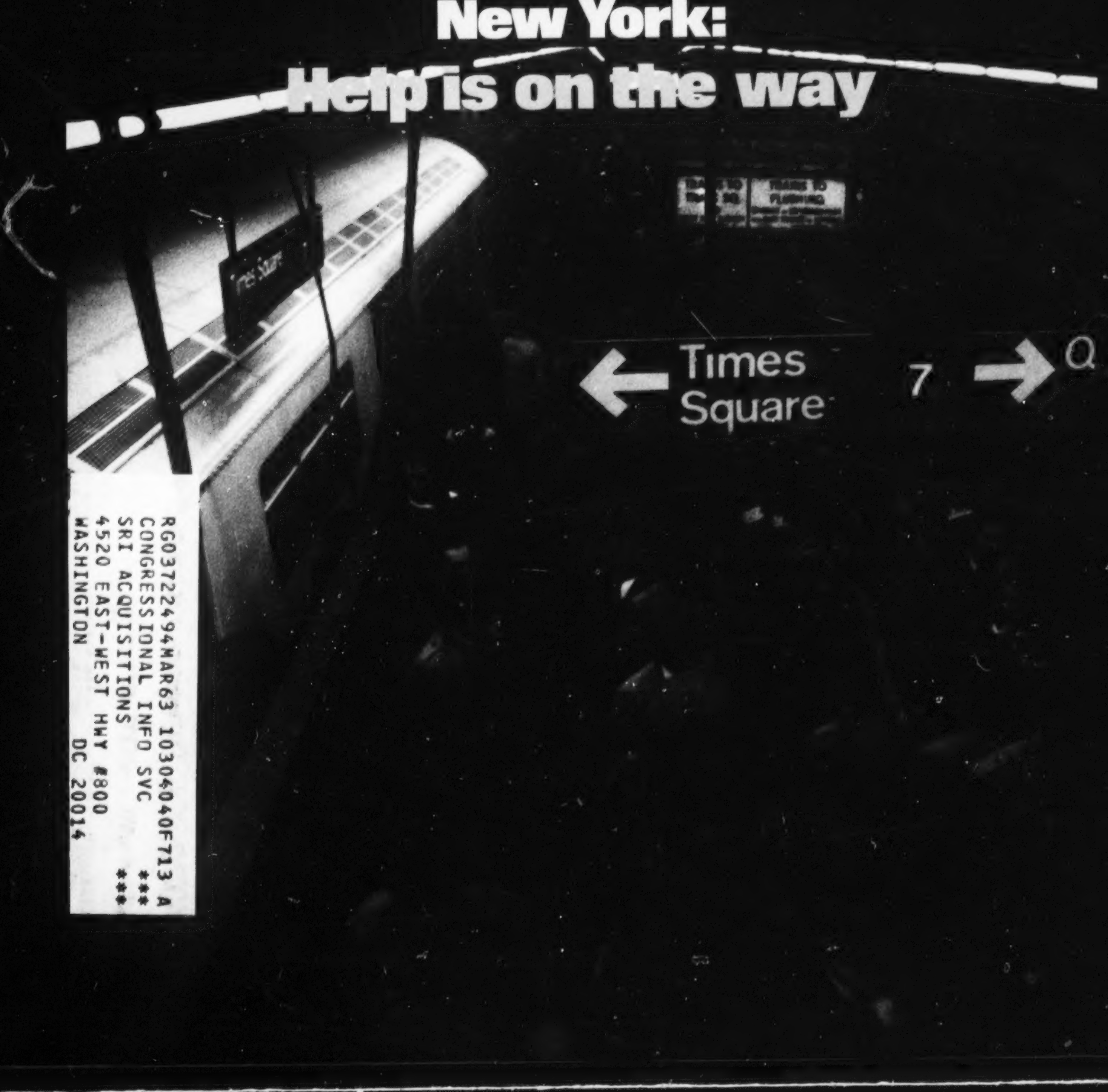
MOVING PEOPLE: Annual Review and Outlook

January 11, 1982

RAILWAY AGE

New York: Help is on the way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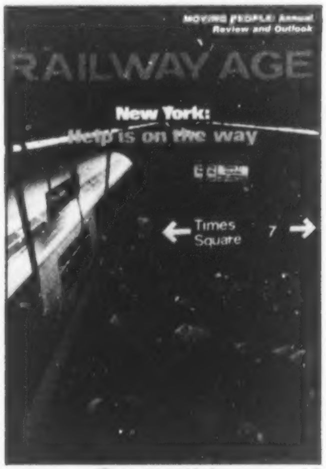
RAILWAY AGE

January 11, 1982

FEATURES


MOVING PEOPLE: Annual Review and Outlook
RAILWAY AGE
New York: Help is on the way
Times Square
7

Cover article, page 18

14 Moving People: New year—new funding battles
Federally-subsidized passenger trains—intercity, commuter, and transit—came out of last year's funding battles with only superficial scars. But the effort to slash federal aid, especially for transit, will continue in 1982.

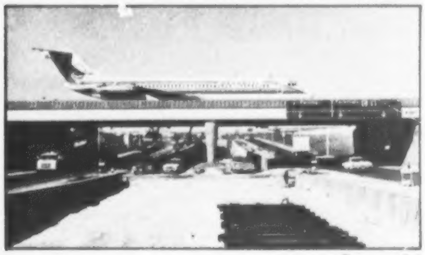
18 New York: Help is on the way
The five-year, $7.9 billion capital program of the Metropolitan Transportation Authority has won final approval. The bulk will go for rail and rail-related projects, including $2.25 billion for new transit and commuter cars.

24 O'Hare extension: More than just an airport line
New developments are springing up all along the new 7.3-mile line because, one Chicago official points out, "developers see the ready labor market that good transportation makes available." First trains may run late this year.

27 C&NW: Big savings from rebuilds
Chicago & North Western bought 38 15-year-old GP40's from Conrail, rebuilt them at a cost of $325,000 apiece—and as a result expects 15 more years of reliable, fuel-efficient service. Estimated savings: $21,850,000.

30 Griffin Wheel looks to the future
During a "down" market, Griffin has invested several million dollars in a new locomotive wheel-hub finishing line at its Keokuk, Iowa, plant. The company sees a growing market for wheels machined to exact specs.

32 Why are some railroads safer than others?
Associate Editor John Armstrong takes a close look at three roads—Rio Grande, Santa Fe and Boston & Maine—that in recent years have ranked at or near the top in any listing of "safest" railroads.



Page 24

Page 32

NEWS

9 Long-truck bill gains in Congress
9 Conrail recaptures crude oil movement
9 Raised markers at grade crossings?
10 BART seeking bids on 60-150 cars
12 A third nominee for the ICC
12 Ports and colliers: Is bigger better?
44 The Railroad Market

COMMENT

3 Inside
10 Watching Washington
12 Lines on Labor

DEPARTMENTS

28 Revenues and expenses
40 People in the News
40 Associations
41 Transit
41 Suppliers
42 100 Years Ago
42 Advertising sales
43 Letters
44 Carloadings
45 Professional cards
46 Classified advertising
47 Guide to advertisers
48 Products Report

COVER: Photo by Roy H. Blanchard

Moving people

New Year—new funding battles

"Amtrak faces the fight of its life as a hostile Adminstration comes to power... The transit funding picture is also clouded by the new conservatism."

—Railway Age, Jan. 12, 1981.

The only people in the rail passenger field who were surprised by the events of 1981 were those who didn't believe that Ronald Reagan meant what he said in his presidential campaign.

Amtrak *did* have to fight for its very life in 1981; and the clouds overhanging transit and commuter aid thickened.

Amtrak more or less won its fight (being forced finally to accept only a 10% reduction in its service, rather than being driven into a last-ditch Northeast Corridor line, which seemed to be the Administration's battle plan).

While transit took its lumps in the appropriations for FY 1982 (which ends Sept. 30), supporters could consider themselves lucky on one major point—that a bid to pass a five-year authorization failed. Almost certainly it would have locked in deep cuts for operating and capital assistance and assured an indefinite deferral of new rail starts that would have been hard to undo later. Instead, political squabbling made passage of a new authorizing bill impossible, and what emerged was simply an appropriation for FY 1982 under the old authorizing legislation. That bill expires this year, and again there will be a strong push for a multi-year authorization.

● **New cutbacks for Amtrak?** As new funding battles shape up, there is no room for complacency—certainly not on the part of Amtrak.

True, there does exist a FY 1983 Amtrak authorization of $788 million—enough to carry Amtrak at its current level of operations with about $100 million left over for capital needs. (New low-level cars for use in the East, and track work in Michigan and elsewhere, are prime candidates for that money, if it materializes.) But an authorization does not a budget make, and already there are rumors that the Department of Transportation might push for an appropriation of only $600 million or less. New service cutbacks could be the result.

A plus for Amtrak in this year's struggle, as it was in 1981, will be the American public's reluctance to let passenger trains die. Another ingredient in last year's success for Amtrak was its announced intention to cut costs and increase revenues. That effort will continue to play an important role in generating public support.

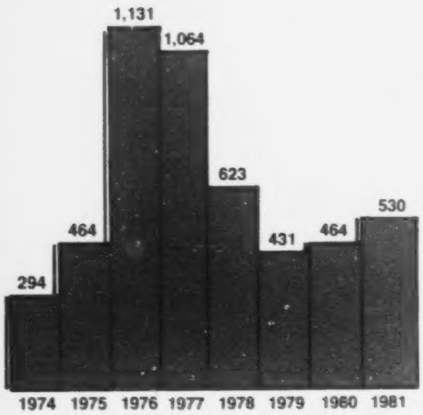
Since last summer, Amtrak has been assembling a corporate development arm that will act to carry out President Alan S. Boyd's plan to diversify earnings through development of Amtrak's right of way and stations, and by accepting contract work at the railroad's Beech Grove, Ind., shops. Meanwhile, Amtrak's budget has been pruned by reductions in management staff, elimination of full dining car service, and other measures. The replacement or overhaul of virtually its entire fleet of cars and locomotives, now nearly complete, will also be an important factor in keeping costs down.

In a move that will not displease conservatives, Boyd is pushing for private sector backing of a plan to bring Japanese Bullet trains to the United States. Formation of a Japanese-American Railway Congress last summer kicked off a study of four routes that might see the construction of entirely new passenger-carrying, high-speed railroads with backing from Japanese railway interests.

● **Passenger trains and politics.** The timing of an election year will also be critical. Because the fiscal year ends Sept. 30, any cutbacks could result in the discontinuance of trains about one month before elections. That is something very few congressmen want to face. Indeed, last year there was another in the virtually annual demonstrations of the importance of passenger trains to members of Congress. Though the Washington-Chicago Cardinal failed to meet congressionally-established per-

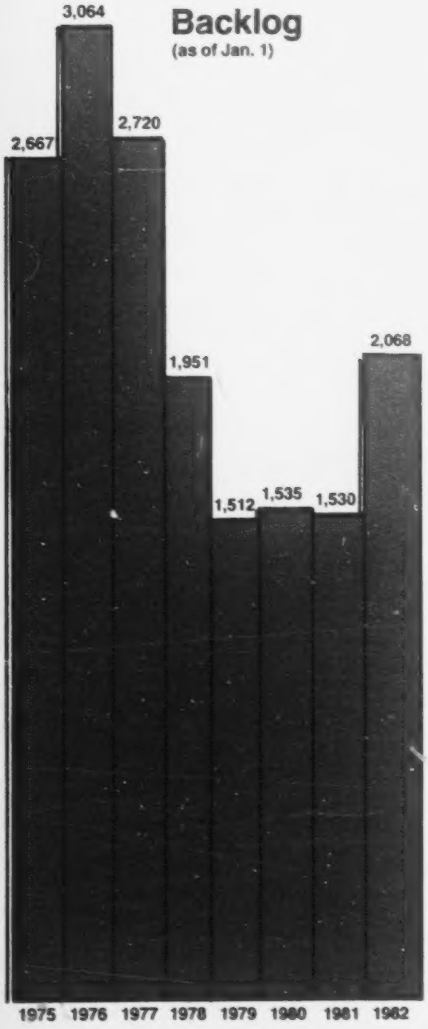
Passenger car market at a glance

Deliveries



Backlog

(as of Jan. 1)



These cars were delivered in 1981:

Purchaser	No. of Cars	Type	Builder
Amtrak	83	Intercity	Pullman Standard
	17	Intercity	Budd
Atlanta (MARTA)	34	Rapid Transit	Societe Franco-Belge
Boston (MBTA)	120	Rapid Transit	Hawker-Siddeley
Chicago (CTA)	14	Rapid Transit	Budd
Cleveland (GCRTA)	20	Light Rail	Breda
New Jersey (NJDOT)	26	Commuter	GE
New York (MTA-Conrail)	10	Commuter	Budd
Philadelphia-Camden (PATCO)	2	Rapid Transit	Canadian Vickers
Philadelphia (SEPTA)	67	Light Rail	Kawasaki
	2	Rapid Transit	Kawasaki
Toronto (TTC) (purchased through UTDC)	85	Light Rail	Hawker-Siddeley
VIA Rail Canada	50	Intercity	Bombardier
Total	**530**		

Work goes forward on this undelivered backlog:

Purchaser	No. of Cars	Type	Builder
Amtrak	134	Intercity	Budd
Atlanta (MARTA)	2	Rapid Transit	Societe Franco-Belge
Baltimore (MdMTA)	72	Rapid Transit	Budd
Buffalo (NFTA)	33	Light Rail	Tokyu Car
Calgary	3	Light Rail	Siemens DuWag
Chicago (CTA)	586	Rapid Transit	Budd
Chicago-Northern Indiana (RTA-NITA-CSS&SB)	44	Commuter (self-propelled)	Sumitomo (Nippon Sharyo)
Cleveland (GCRTA)	28	Light Rail	Breda
Miami (MDCTA)	136	Rapid Transit	Budd
Miami (DCM)	12	People mover	Westinghouse Electric/ Kawasaki
New Jersey (NJDOT)	33	Commuter	GE
New Jersey (NJ Transit)	117	Commuter	Bombardier
New York (MTA-Conrail)	60	Commuter	Budd
New York (MTA-LIRR)	70	Commuter	Budd
Philadelphia (SEPTA)	74	Light Rail	Kawasaki
	123	Rapid Transit	Kawasaki
Portland (Tri-County MTD)	26	Light Rail	Bombardier
San Diego (MTDB)	10	Light Rail	Siemens DuWag
Scarborough (Toronto)	24	Light Rail	UTDC/Metro Canada
Toronto (GO Transit)	71	Commuter	Hawker-Siddeley
Vancouver	114	Light Rail	UTDC/Metro Canada
Washington (WMATA)	296	Rapid Transit	Breda
Total	**2,068**		

Orders likely to develop in 1982:

Purchaser	No. of Cars	Type
Atlanta (MARTA)	30	Rapid Transit
Boston (MBTA)	50-100	Light Rail
Calgary	35	Light Rail
Cleveland (GCRTA)	60	Rapid Transit
Detroit (SEMTA)	13	Light Rail
Edmonton	8	Light Rail
New York (NYCTA)	1,150	Rapid Transit
New York (MTA-Conrail)	82	Commuter
New York (MTA-LIRR)	146	Commuter
Pittsburgh (PAT)	55	Light Rail
San Francisco (BART)	4	Rapid Transit (prototypes)
San Francisco (Muni)	22-30	Light Rail
Toronto (GO Transit)	15-25	Commuter
Toronto (TTC)	24	Light Rail
	60	Rapid Transit
Total	**1,754-1,822**	

The five year (1983-1988) outlook:

Purchaser	No. of Cars	Type
Atlanta (MARTA)	0-70	Rapid Transit
Calgary	85	Light Rail
Connecticut (CDOT)	100	Commuter
Detroit (SEMTA)	17-45	Commuter
	75	Light Rail
Edmonton	12-40	Light Rail
Honolulu	85	Rapid Transit
Los Angeles (SCRTD)	120-132	Rapid Transit
New Jersey (NJ Transit)	0-37	Commuter
New York (NYCTA)	226	Rapid Transit
New York (MTA-Conrail)	44	Commuter
Philadelphia (SEPTA)	50	Commuter
	15	Rapid Transit
	30	Light Rail
Sacramento Transit Dev. Agency	26-28	Light Rail
San Francisco (BART)	60-150	Rapid Transit
San Francisco (Muni)	12	Light Rail
Toronto (TTC)	81	Light Rail
	66	Rapid Transit
Total	**1,104-1,371**	

"What we feel to be responsible approach is a block grant concept where operators receive funds with few strings."

formance criteria and was discontinued in October, it was soon a subject of horse trading over various issues between the Administration and powerful Senate minority leader Robert C. Byrd (D.-W. Va.). In the end Byrd won, over the stiff opposition of Sen. Bob Packwood (R.-Ore.). The Cardinal was scheduled to resume service on a three times a week basis Jan. 8.

Another political debt was repaid to Sen. Mark Andrews (R.-N.D.). Andrews fought hard last year to maintain Amtrak's budget at $735 million through a long series of votes that kept the system's fate in uncertainty until early December. With full funding now virtually assured through FY 1982, Amtrak decided to retain the Empire Builder, an important train to Andrews' constituents, on a daily basis following the Christmas rush. Normally it reverts to thrice-weekly operation during the off-season.

Supporters of federal subsidies for transit and commuter operations will also be doing some hard politicking as the Administration this year makes another effort to push through a multi-year authorization for the Urban Mass Transportation Administration.

Such legislation could spell hard times for operating agencies if the Administration is able to incorporate the big funding cuts it has proposed. Again, an election year might work against the Administration: passage of a long term authorization that slices deeply into city transportation programs won't make urban constituents happy. Democrats and some urban Republicans will work hard to restrict the next UMTA authorization to 1983 only, hoping that in following years, with perhaps a new and less conservative Administration in power, they can rebuild some of the programs now being threatened.

- **100 billion pennies?** One hope held out by Jack R. Gilstrap, executive vice president of the American Public Transit Association, is that the Administration's proposed increase in the federal gasoline tax will include a penny for transit. One hundred billion pennies should be collected this way, compensating for some of the proposed transit cuts. Late in 1981 the Office of Management and Budget was reportedly talking about an appropriation of $2.9 billion for FY 1983. In 1981 UMTA was funded for $4 billion. If that shortfall of more than $1 billion could be recouped through gas tax revenues, Gilstrap thinks the money could be applied to restore capital and non-labor related maintenance programs.

"Cloudy" is about the best forecast that can be made right now for the chances of success for the gas tax. It is likely to become embroiled in a wide-ranging debate, including the "competitive equity" issue between highways and railroads. And even if it is approved, of course, there are no guarantees that part of it would be earmarked for transit.

- **Making a case for transit—again.** Two years ago there was no need to talk of trying to restore funding to UMTA. "We had come to feel that transit's case had been made," notes APTA's Gilstrap. That was before Secretary of Transportation Drew Lewis and UMTA Administrator Arthur Teele told transit officials that a healthy economy was as vital to transit as it was to any group—and that the only way to pump vitality back into the economy was to cut government spending for many programs, including transit. Suddenly, says Gilstrap, it has become obvious that "it's important to keep the case for transit before the public."

APTA has announced it will launch a much more aggressive lobbying campaign. If the Adminstration wants to talk about national priorities, says Gilstrap, then it would do well to remember that transit is vital to the viability of large cities. "If the cities don't work, the nation doesn't function properly, and if that doesn't happen then the President's recovery program is doomed."

One big problem, a Senate staff member says, is that "at a time when the pie is getting smaller, everybody tends to jump in to grab for a piece. But that's just the thing we shouldn't be doing now. They [APTA] have to build a broad coalition with the cities for effective action."

Gilstrap says APTA has been working for several months to develop a consensus within the transit community—to arrive at a joint policy that both large and small systems can support. "Essentially what we feel to be a responsible approach is a block grant concept where local operators receive funds with few strings attached," he says.

UMTA's Teele is willing to back such a funding vehicle—but he wants to attach some important strings.

Teele is opposed to providing operating and maintenance assistance that will support labor costs in any form. He has demonstrated that a strong correlation exists between rising federal subsidies and rising labor costs (*RA*, Aug. 12, 1981, p. 28). Since 1974, when federal operating subsidies were instituted, farebox income decreased 14% as federal funds rose to 15% of transit revenues. At the same time, agreements negotiated with transit unions kept wages ahead of the consumer price index and ahead of wages for police, firemen, and other public workers.

Teele is convinced—and Gilstrap doesn't argue the point—that the availability of federal money took from transit managers much of the incentive to enter into tough negotiations with employees.

Managers point to another federal policy that promotes high wage settlements—the so-called 13c regulations. Under these rules, federal subsidies can be held back until a transit agency reaches an agreement with its union for wages and work rules. Operators claim their grants have been held hostage by the unions until negotiators accept too-generous settlements. Here the agencies apparently have Teele's sympathy. He has pledged to work with the Department of Labor to find an administrative approach to modifying the 13c regulations.

Though the regulations could be changed through congressional action, most do not favor that course. Democrats are sensitive to moving on what shapes up as an anti-labor position, and there is general reluctance to further complicate the anticipated battle over a long-term authorization. As one aide noted, "It's the kind of thing that can kill a piece of legislation."

- **A role for the private sector?** The Administration's position is that government should allow the private sector more latitude in solving many of the problems that have until recently been seen as the responsibility of the state. For transit, this philosophy has been translated into statements by Teele and others that private business could fill in some of the voids created as federal funds start to dry up.

That's fine, says Gilstrap, but what about transit's competition—the private automobile, which benefits from the largest public subsidy of all? He points to a recent move by the Administration to allow federal employees free parking spaces in the District of Columbia as "evidence of a bias toward autos."

Gilstrap acknowledges that there is a role for the private sector in providing transit—but a limited role. "The word 'skimming' is an appropriate one when you talk about what private industry can do," he says. "Most private carriers want to pick and choose the best routes." Conversely, he adds, "Very few of our transit systems have authority to develop real estate they own or to engage in the kind of service private operators find profitable."

His proposal: "Let's go back and examine the private system in total. Let's allow the transit systems to operate like private businesses." ■

REVENUES AND EXPENSES OF RAILWAYS

Third quarter figures of calendar year 1981

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

		Operating revenues				Operating expenses								Operating ratio		Income after fixed charges		1981 Net Ry. operating income	Net income	
						Way & structures			Equipment											
		Freight	Other	Total 1981	Total 1980	Total 1981	Total 1980	1981 Deprec.	Total 1931	Total 1980	1981 Deprec.	Total 1981	Total 1980	1981	1980	1981	1980		1981	1980
Amtrak	3 mos.	—	355,621	355,621*	275,206*	26,545	31,694	2,866	93,894	96,548	20,219	333,849	325,700	93.87	118.34	948	(57,192)	21,744	948	(57,192)
	9 mos.	—	930,369	930,369*	809,986*	67,432	64,283	5,064	266,711	262,575	54,381	971,821	875,717	104.45	108.11	(93,290)	(88,521)	(41,448)	(93,290)	(88,521)
Atchison, Topeka & Santa Fe	3 mos	600,413	13,548	613,961	570,395	107,287	92,359	3,992	128,916	116,521	21,555	566,560	501,131	92.3	87.9	39,027	64,629	39,915	31,289	49,380
	9 mos.	1,765,859	39,530	1,805,389	1,612,067	303,723	270,989	11,269	385,627	345,589	63,847	1,669,990	1,477,501	92.5	91.7	114,404	118,788		84,217	91,964
Baltimore & Ohio	3 mos.	269,848	11,392	281,240	219,867	65,134	53,226	1,784	67,286	45,023	7,058	266,566	216,210	94.78	98.33	11,014	(1,869)	13,467	9,212	(2,484)
	9 mos.	749,696	27,802	777,498	691,301	162,063	138,906	5,283	179,753	153,778	22,543	741,251	658,608	95.33	95.27	50,558	21,864	24,450	37,028	20,478
Bessemer & Lake Erie	3 mos	32,979	2,092	35,071	31,374	4,382	2,952	685	4,084	3,211	1,232	22,945	17,075	65.42	54.42	14,805	14,440	7,619	10,297	7,243
	9 mos	81,323	5,408	86,731	83,281	11,660	11,188	2,049	7,256	12,483	3,896	60,341	57,153	69.57	68.62	32,106	28,538	13,259	18,971	14,991
Boston & Maine	3 mos.	28,763	1,273	30,036	28,680	7,366	6,094	280	7,849	7,418	359	31,793	28,727	105.84	100.16	(465)	592	(1,687)	(658)	(1,740)
	9 mos.	87,085	4,472	91,557	85,706	19,301	16,306	843	23,611	21,992	1,079	93,054	85,222	101.63	99.43	1,873	2,128	(1,292)	1,290	(5,727)
Burlington Northern	3 mos	933,491	20,728	954,219	779,802	202,099	174,073	5,667	184,060	163,732	18,282	874,721	729,932	91.66	93.60	99,454	60,538	45,967	65,894	39,919
	9 mos	2,740,771	67,359	2,808,130	2,150,805	535,651	418,957	16,768	583,469	459,236	54,789	2,593,295	1,988,519	92.34	92.45	269,574	197,270	136,042	190,694	157,911
Chesapeake & Ohio	3 mos.	297,709	16,829	314,538	228,849	53,649	43,654	1,894	54,812	39,973	3,696	245,749	201,425	78.13	88.01	80,047	22,652	45,611	56,804	12,698
	9 mos	710,554	33,722	744,286	693,284	145,761	123,739	5,655	162,568	141,332	10,864	689,331	612,141	92.61	88.29	110,891	104,321	30,344	86,345	75,886
Chicago & North Western	3 mos	218,499	26,316	244,815	243,943	65,251*	53,129	1,227	57,878	63,013	4,426	253,144	237,183	50.29	47.61	(13,992)	1,245	(4,971)	(9,871)	1,208
	9 mos	680,226	75,650	755,876	675,397	167,537	141,070	3,480	174,113	174,068	13,134	741,832	668,865	45.19	46.65	(890)	(7,967)	18,278	8,183	(8,077)
Chicago, Milwaukee, St. Paul & Pac.	3 mos.	88,781	15,347	104,128	92,001	34,454	26,204	1,695	27,086	27,193	4,141	125,279	115,112	120.31	125.12	7,793	(25,268)	(21,171)	3,276**	(50,642)
	9 mos.	270,562	39,640	310,202	284,384	68,556	68,719	3,063	94,043	105,502	12,058	356,497	374,114	114.92	131.55	187,059	(77,777)	(47,316)	180,887**	(171,014)
Clinchfield	3 mos	29,728	301	30,029	22,891	5,170	3,819	112	3,807	3,161	984	20,907	15,958	69.6	69.7	3	4	9,640		
	9 mos	77,058	756	77,814	66,170	13,980	11,184	334	11,481	9,842	2,949	58,166	47,326	74.8	71.5	11	9	21,227		
Colorado & Southern	3 mos.	40,124	550	40,674	32,691	9,407	11,901	70	9,816	7,768	702	39,136	35,695	96.21	109.19	10,158	702	1,063	9,683	1,259
	9 mos.	113,932	1,686	115,618	93,386	23,615	22,599	202	27,427	21,499	2,116	110,373	92,145	95.46	98.67	23,454	13,797	3,899	22,108	15,469
Conrail	3 mos	851,499	170,189	1,021,688	892,268	236,330	219,286	6,160	248,090	253,147	35,753	1,043,947	1,029,369	102.18	115.37	(33,643)	154,365		(3,272)	(153,369)
	9 mos	2,545,751	509,057	3,054,808	2,804,736	574,628	582,884	17,959	788,579	795,434	106,241	3,128,507	3,125,535	102.41	111.44	(104,541)	362,709	(71,229)	(102,180)	(360,398)
Delaware & Hudson	3 mos.	29,171	1,317	30,488	28,014	6,343	6,796	152	8,144	7,820	1,262	32,559	30,605	106.8	109.2	(4,645)	(3,315)	(1,973)	(4,645)	(3,315)
	9 mos.	85,974	3,685	89,659	86,662	16,563	15,996	440	25,185	25,193	2,533	95,697	89,857	106.7	103.7	(11,465)	5,223	—	(11,465)	(5,223)
Denver & Rio Grande Western	3 mos	85,752	1,636	87,388	72,328	16,442	11,970	604	13,766	10,701	3,011	75,543	59,347	86.44	82.05	12,388	11,742	6,620	7,170	6,945
	9 mos	246,228	4,459	250,687	208,411	45,760	35,232	1,852	38,508	32,310	9,803	216,395	177,696	86.32	85.26	33,677	26,761	20,200	19,526	16,748
Detroit, Toledo & Ironton	3 mos.	20,563	616	21,179	15,030	5,872	3,391	84	5,650	5,928	775	21,880	18,870	103.3	125.5	(1,355)	(3,794)	(787)	(1,355)	(3,794)
	9 mos.	63,517	2,341	65,858	53,657	12,802	9,192	428	18,102	18,390	3,030	65,014	58,284	98.7	108.6	(1,583)	(4,989)	864	(1,583)	(4,771)
Duluth, Missabe & Iron Range	3 mos	40,108	521	40,629	27,440	9,329	6,252	873	3,173	3,161	718	26,355	19,624	64.86	74.14	15,874	8,488	6,923	8,647	4,382
	9 mos	87,467	2,343	89,810	72,737	21,737	19,263	2,617	9,678	6,378	2,132	66,586	55,311	71.51	76.04	26,080	20,036	10,422	14,326	10,527
Elgin, Joliet & Eastern	3 mos.	16,544	11,840	28,384	21,381	4,256	3,318	194	4,755	2,368	1,832	25,607	20,263	90.21	94.77	4,341	2,716	336	1,900	1,643
	9 mos.	51,358	35,257	86,615	82,465	11,062	10,713	581	11,813	11,628	5,483	73,095	72,800	84.39	88.28	17,953	15,930	4,883	9,316	8,794
Florida East Coast	3 mos	23,793	654	24,447	23,231	7,093	5,070	238	3,897	4,709	1,200	22,244	18,340	91.0	78.9	3,570	7,952	890	2,257	5,115
	9 mos	75,245	1,728	76,973	69,116	20,371	14,195	707	11,840	11,943	3,593	67,572	52,750	87.8	79.1	14,338	22,185		9,591	14,400
Ft. Worth & Denver	3 mos.	48,789	1,220	50,009	35,351	8,777	5,873	88	9,335	9,213	137	37,044	30,552	74.07	86.42	13,542	5,411	7,061	7,638	3,828
	9 mos.	129,933	2,809	132,742	102,321	22,134	16,235	257	26,970	25,349	409	105,578	86,231	79.53	84.27	27,848	16,397	16,315	16,999	10,786
Grand Trunk Western	3 mos	50,455	2,394	52,849	41,199	8,683	9,011	312	11,109	9,587	718	54,293	48,555		117.9	(2,319)	(8,189)	(674)	(1,554)	(6,887)
	9 mos	162,019	8,030	170,051	141,248	23,951	21,897	1,157	35,210	32,298	3,712	168,093	148,355		105.0	(842)	(7,396)		(1,198)	(4,471)

Illinois Central Gulf	3 mos.	236,287	21,420	257,707	230,758	55,985	53,368	1,959	71,108	69,200	7,292	266,922	250,395	103.6	108.5	(17,989)	(20,461)	7,493	(16,668)	(18,945)
	9 mos.	714,452	60,423	774,875	713,949	157,672	140,412	5,678	211,830	197,523	21,987	789,586	730,366	101.9	102.3	(27,768)	(31,590)	11,137	(25,739)	(29,629)
Kansas City Southern	3 mos.	76,989	4,037	81,026	69,717	17,289	14,531	755	17,978	15,780	4,459	70,409	61,026	43.5	43.5	10,247	7,964	–	7,516	5,480
	9 mos.	220,778	11,345	232,123	203,297	46,802	38,099	2,280	51,076	47,680	12,571	202,937	177,356	42.2	42.2	27,273	24,621	–	20,410	17,749
Long Island	3 mos.	4,472	98,016	102,488	83,424	21,847	19,392	825	25,579	21,203	1,966	108,893	94,012	106.3	112.7	(6,674)	(10,821)	5,372	(6,674)***	(10,821)
	9 mos.	14,988	79,073	284,935	260,760	61,365	56,053	2,476	71,370	58,418	5,073	313,219	276,954	109.9	109.3	(28,964)	(16,954)	-	(28,964)***	(16,954)
Louisville & Nashville	3 mos.	318,217	6,141	324,358	260,639	58,620	45,758	1,542	66,857	57,080	10,654	286,839	243,154	88.4	93.3	32,080	11,230	34,595	27,787	9,863
	9 mos.	925,620	17,578	943,198	785,354	161,727	133,048	4,633	202,896	183,855	31,657	851,033	742,262	90.2	94.5	72,158	27,404	86,568	62,740	29,946
Missouri-Kansas-Texas	3 mos.	65,091	3,725	68,816	53,606	14,750	10,230	244	17,258	15,455	895	63,822	52,509	92.74	97.95	2,880	(298)	6,143	3,880	(298)
	9 mos.	194,179	11,379	205,558	156,609	39,050	25,346	732	55,120	46,031	2,689	189,689	149,434	92.28	95.41	8,547	2,097	19,334	11,547	2,597
Missouri Pacific	3 mos.	460,661	13,405	474,066	418,021	88,002	68,650	2,483	104,902	91,654	15,981	420,312	368,378	88.66	88.12	48,548	38,969	42,213	34,979	26,165
	9 mos.	1,384,418	39,802	1,424,220	1,232,931	230,245	179,759	7,354	316,095	278,400	46,461	1,243,365	1,077,351	87.30	87.38	164,217	129,994	137,269	113,468	89,814
Norfolk & Western	3 mos.	481,967	19,683	501,650	371,676	83,577	68,518	3,508	74,420	69,424	13,870	356,907	302,508	71.1	81.4	160,443	75,261	79,961	92,712	43,589
	9 mos.	1,246,682	47,031	1,293,713	1,140,350	219,751	190,823	10,379	208,766	211,204	41,273	988,818	912,450	76.4	80.0	343,056	250,981	-	197,538	150,973
Pittsburgh & Lake Erie	3 mos.	23,174	1,306	24,480	19,896	4,033	3,738	36	2,088	2,800	258	18,001	17,715	73.53	89.03	7,227	(924)	2,622	22,911	(993)
	9 mos.	59,382	4,062	63,444	61,381	10,527	9,824	102	8,317	5,338	744	54,531	48,209	85.95	78.54	5,413	3,572	4,684	20,715	2,468
St. Louis Southwestern	3 mos.	94,942	1,467	96,409	78,462	16,338	13,964	473	19,978	14,677	6,085	84,248	69,805	87.38	88.96	9,548	6,437	8,163	5,550	5,180
	9 mos.	284,080	4,551	288,631	219,009	49,594	36,263	1,527	52,562	37,541	18,418	252,000	195,853	87.30	89.42	30,599	18,833	25,897	19,865	14,001
Seaboard Coast Line	3 mos.	318,200	9,527	327,727	297,691	63,388	46,443	2,164	78,644	66,758	9,828	311,974	263,494	95.2	88.5	54,227	50,064	14,180	52,487	46,572
	9 mos.	969,294	29,657	998,951	899,871	177,248	145,619	6,804	234,580	208,636	28,930	924,720	814,273	92.6	90.5	159,704	133,894	68,729	153,873	125,519
Soo Line	3 mos.	83,841	1,398	85,239	79,245	25,745	18,506	384	14,906	13,329	2,080	76,395	66,401	89.6	83.8	11,532	12,173	5,386	7,917	8,860
	9 mos.	240,323	4,308	244,631	230,563	57,468	46,853	1,136	44,026	43,700	6,145	208,405	195,655	85.2	84.9	39,786	34,785	22,514	25,418	24,004
Southern	3 mos.	454,181	10,113	464,294	396,073	83,293	71,598	4,522	87,320	70,939	20,388	383,363	333,758	82.56	84.26	75,548	54,635	55,052	48,341	36,231
	9 mos.	1,310,310	29,591	1,339,901	1,208,103	208,857	204,956	13,548	247,682	218,087	59,552	1,079,820	991,278	80.58	82.05	248,678	200,026	175,423	159,975	136,787
Southern Pacific	3 mos.	541,509	16,757	558,266	519,875	89,020	70,911	4,790	150,006	128,630	21,549	566,431	500,903	101.46	96.35	(8,830)	19,223	4,852	4,187	17,513
	9 mos.	1,664,571	50,052	1,714,623	1,518,463	264,992	196,581	14,739	435,923	394,642	64,770	1,697,215	1,497,032	98.98	98.58	16,088	13,502	26,843	25,938	12,143
Union Pacific	3 mos.	515,483	8,582	523,065	509,404	89,554	71,031	3,081	100,009	92,108	24,434	457,014	422,171	87.4	82.9	54,179	73,807	–	42,111	57,559
	9 mos.	1,575,471	23,180	1,598,652	1,468,618	252,200	228,518	9,038	304,438	280,826	73,405	1,367,197	1,267,627	85.5	86.3	193,784	163,698	167,271	129,388	124,072
Western Maryland	3 mos.	22,421	754	23,175	24,056	7,126	6,079	194	2,661	2,984	1,592	20,532	22,099	88.59	91.86	3,157	1,617	1,608	2,113	1,375
	9 mos.	63,589	2,722	66,311	68,579	17,325	15,796	581	7,735	9,332	4,801	57,786	60,094	87.14	87.62	8,932	9,271	4,973	5,354	6,217
Western Pacific	3 mos.	47,115	552	47,667	50,502	8,941	6,764	70	12,017	10,229	1,761	52,776	46,204	110.7	91.5	10,947	4,527	(6,729)	9,286	3,797
	9 mos.	141,840	1,674	143,514	136,185	23,675	17,870	263	33,626	31,795	5,108	149,058	134,389	103.9	98.7	10,572	3,664	(7,095)	8,901	2,982

* Includes subsidies

** Includes real estate sales

*** Excludes approximately $70 million possible surcharge revenue refund and related interest currently pending appeal.

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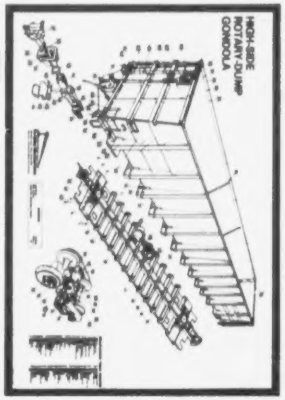

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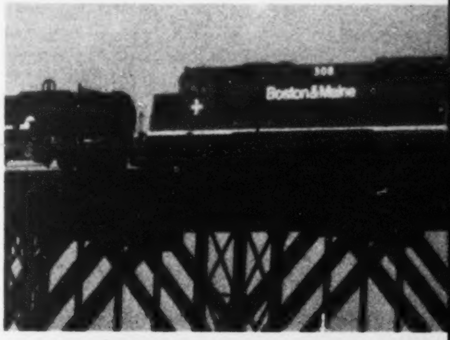
Why are some railroads safer than

Their operating characteristics are dissimilar—but D&RGW, Santa Fe, and B&M have one thing in common: They are consistently at or near the top of any list of "safest" roads.



By JOHN ARMSTRONG,
Associate Editor

No one is fully comfortable talking about a good safety record—there's always a "knock on wood" realization that in the twinkling of an eye a combination of events and circumstances can lead to a wreck of proportions sufficient to tarnish the best of records.

Over the last two years, however, the collective record of railroads in the United States has been improving to the extent that *not* talking about it could represent a serious gap in appreciating the current state of the art. Now as always, there are innumerable ways of massaging accident and casualty statistics which already include inevitable aspects of arbitrariness—at any given time, some well-established indicators may be pointing in different directions. Nevertheless, current trends are so universally toward significantly improved rates as to prompt a closer look for reasons why.

Most front-page in character is the *number* of train accidents, reported under long-standing FRA definitions descending from the 1910 federal law establishing under-oath inputs from all common carriers by rail. As Fig. 1 shows, a consistent trend toward lower numbers which became evident in 1979 continued throughout 1980 despite the fact that inflation was steadily pushing downward the amount of bent metal, ripped up rail, or rebuilding man-hours represented by the threshold damage level of $2,900 in effect during those two years; previous experience with every-other-year adjustment of the threshold for inflation had shown an increase in the number of train accidents for the second year. The annual threshold adjustment in effect starting with 1981 is intended to eliminate this complicating factor in year-to-year comparisons.

The trend demonstrated during the first eight months of 1981 (the latest period for which figures are available) continues its strong downward slope, with every indication that the train accident rate for the whole year will be well below 10 per million train miles, a reduction of more than one third from 1978.

● **Costs down, too.** Reportable train-accident cost totals—which include only direct damage to railroad track and rolling stock, excluding costs of wreck clearing and damage to lading (these were estimated in a 1974 DOT-sponsored study to total approximately the same as the reportable figures) aren't greatly affected by the reporting-threshold in use; the average per accident in 1980 was $32,411, so the inclusion or exclusion of some fender-benders in the $3,000 range doesn't significantly change the overall expense of restoring the track and trains to their pre-wreck state. Inflation just keeps working to raise the totals proportionally.

Fig. 1

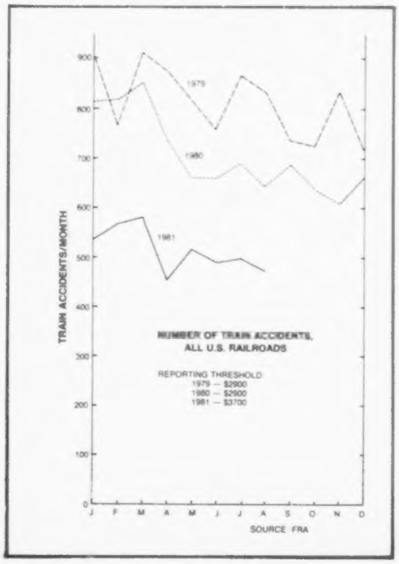
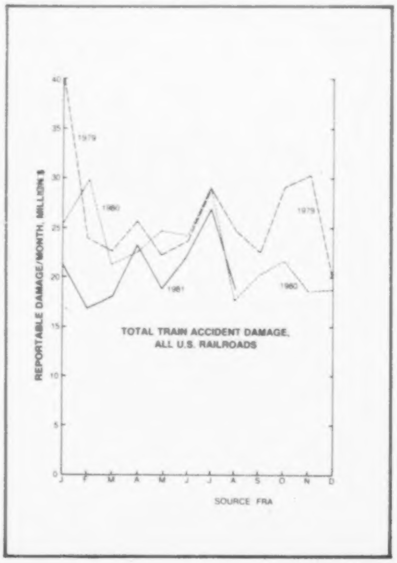


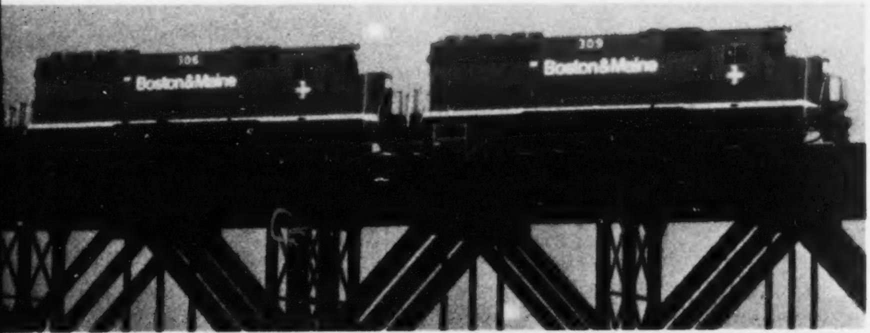
Fig. 2

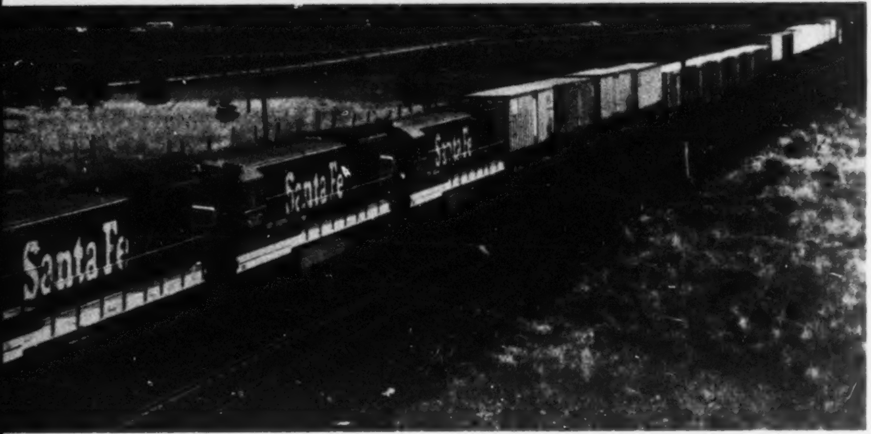


As Fig. 2 shows, though, during this period of relative traffic stability the reduction in accident damage rates, though bouncing around considerably from month to month, appears to have been doing a little better than keeping up with unit costs. Expressed in the percentage-of-revenue terms we are used to in evaluating progress in the loss-and-damage struggle, the reportable accident-damage cost ratio fell below the 1% level in 1980, a rather impressive improvement from 1.43% in 1976 (the first year for which statistical categorizations were reasonably comparable to today's).

What has been the big factor in this improvement? Starting with its 1979 edition of the annual *Accident/Incident Bulletin* (whose 150 pages or so summarize, cross-correlate, digest, and display the data received in some 80,000 individual reports), the FRA's Office of Safety has broken out reportable cost totals for each of the 165 specific categories into which accident causes are partitioned; previously, only the number of accidents attributed to each was given. Broader categorizations of costs by cause (human factors, equipment failures, track defects, and other) and effect (collisions, derailments and

others?





an equally indispensable "other" which of course isn't the same as the other "other") show enough randomness over the several years for which they have been available to indicate that the current improvement is probably not attributable primarily to any single major factor. While the number of track-defects accidents dropped by 27% between 1978 and 1980, damage attributable to these accidents remained very close to 39% of total damage costs.

● **Casualties decline.** Train and non-train incidents—numerically dominated by highway grade crossing/trespasser and "industrial accident" railroad-employee casualties, respectively—were also down in 1980. This is the first year-to-year decline since unification of railroad and Occupational Safety & Health Administration (OSHA) reporting criteria in 1975 ballooned the numbers by including all medical-treatment incidents, not just lost-time cases, for employee and general-public casualties alike. Outnumbering train-accident casualties by 60 to 1, these incidents can be and are cross-correlated in the Bulletin to tot up precisely who is injured how by what while doing what under which circumstances, to the extent that those hazards demonstrably most important are readily recognizable.

In an effort to make accident figures more comparable with those in other industries and occupations, railroads must attempt to separate casualties occurring on or around rolling stock while it is stationary (now classified as "non-train") from similar "train" incidents with equipment in motion. Either way, getting on or off locomotives and cars stands out, with the 2,165 "train" and 2,222 "non-train" such casualties in 1980 far overshadowing the 957 total for *all* train accidents. Nevertheless, the 23% decline in fatalities and 26% decrease in injuries in train accidents for the first eight months of 1981 is good news.

● **Are all railroads the same?** With the preponderance of railroad employee casualties (more than 70% of the fatalities, 99% of the injuries) *not* associated with train accidents, most of the saving of life and limb from railroad safety programs must come from the development of safe working habits and conditions on and around the trains and tracks, in shops and offices, and working with the machinery, tools and transport it takes to maintain roadway and equipment. This is the sort of program whose relative success is related and recognized for more than 60 years by the highly respected Harriman awards. Administered by the Transportation Association of America and bestowed annually on the basis of combined employee frequency/severity casualty records, these gold, silver and bronze awards for companies of different size categories (as determined by number of employee-hours worked) have over the years been won both by roads with long-standing records of exceptional safety and by newcomers as a climax to turnarounds from positions at or near the rear of the pack; special awards for year to year improvement recognize companies where things are looking up but haven't reached top levels.

How good is great? Fatalities are rare enough that rates per million man hours worked are volatile for even the largest roads; three-year injury frequency rates for 1980's Harriman gold medal winners show better the possibilities and limits in *consistently* bettering the industry average on railroads of differing size.

Group A (over 20 million man hours/year):

Atchison, Topeka & Santa Fe....57.4% of Class I Average.

Group B (5 to 20 million man hours/year):

Denver & Rio Grande Western....49.4% of Class I Average.

Group C (less than 5 million man hours/year):

Florida East Coast....24.5% of Class I Average.

Apparently the larger the railroad the more difficult it is to achieve equivalent pecentage reductions from the norm. On any system the size of the Santa Fe, maintaining a rate more than 40% below the mean (which translates into eliminating the pain of 4,500 injuries in a three year period) is a monumental accomplishment: the FEC performance can only be compared to something like a career batting average of .600 or so.

● **What about hardware damage?** Baseballs and boxcars do take odd bounces on occasion, and everyone in the business very long has his stories of the minor incident that cascaded into a big pile-up or of the major accident looking for a place to happen which luckily and illogically didn't find it. Over time, such things must average out. How much difference in accident *hardware* (reportable damage) costs is there between railroads? Do some operating conditions put low accident and damage rates effectively out of reach of today's railroading?

Taking advantage of the FRA's current separation of Class I railroads into three geographical districts (which already entail such overlaps as placing Amtrak, arbitrarily if logically, in the Eastern District and will face bigger problems as the merger process moves onward), Table II puts the last three years' operations in terms of train accidents per million miles and reportable damage per train mile, by district and in the aggregate.

For such large groupings, rates are relatively isolated from the effects of the occasional super-costly wreck and show clearly the decline, outpacing inflation, in the damage per mile rate between 1979 and 1980 for Class I railroads as a whole. With inflation driving up costs per accident, the reduction had to be achieved by cutting down on frequency; leading the way during this period were the railroads in the Southern District, with a 42% reduction in accidents per million miles leading to a 33% decrease in damage per train mile over the two-year span.

For the Class II, Class III, and switching/terminal roads (which in total now run off more than 6% as much mileage as their big brethren since the Class I plateau has been raised to $50 million per year) the fluctuations obscure the situation somewhat but the trend—particularly if adjusted for cost trends—is also favorable.

- **The fluke factor.** For all but the very largest railroads train-accident frequency and reportable damage rates are sensitive enough to individual occurrences to fog the significance of year-by-year changes; Table I therefore sticks to 1978 through 1980 averages. The numbers can still frustrate recognition of exceptional performance by a relatively small road: Were it not for a single expensive wreck caused by vandalism, the Florida East Coast would appear high up in this tabulation of companies achieving a three-year damage per mile rate at least 25% below the corresponding average for all Class I railroads.

Since damage rates per mile for passenger train operations are generally far lower than for freight and switching movements, only railroads deriving revenues primarily from freight traffic have been included; Amtrak consistently achieves a rate around half of the Class I average despite the costliness of its rolling stock while the Long Island one year managed to hold its reportable damage ratio to a gaudy 2.5¢ per mile and has averaged less than 1.5 train accidents per million train miles over the whole period.

So, how do the results compare with those based on employee casualty rates? Generally, they're not a great deal different—the perennial Harriman contenders are well represented, and Santa Fe's average of 56.6% of the Class I average is startingly (and no doubt somewhat coincidentally) similar to the 57.4% ratio of its injury rate to the corresponding industry average. Rio Grande shows up even better, holding damage to less than one fourth of the Class I average over the period and to an 18.7% ratio for the last two years. Conrail, probably aided by its percentage of commuter-train mileage to some degree, shows up very well in comparison to some other less beleaguered systems of the largest size clustered at or above the industry average.

- **It isn't geography.** You'd expect that the lowest damage ratios would be turned in by prosperous railroads operating in territory conducive to smooth train handling, particularly if their traffic could be handled at moderate speed and with a minimum of those yard and local movements that tend to maximize the chance of collision or derailment while rolling up few miles to swell the denominator in the damage ratio.

But that is not necessarily so. Noted for the fast and frequent trains it must run for competitive reasons on its single-track mains running through (and over) the Rockies, the Rio Grande certainly hasn't achieved its sparkling record by being straight, level or conservative in its scheduling. Since these ratios are on a train-mile basis, it's not likely that a road running extremely heavy trains could look good, especially if these have to be lowered down exceptionally steep grades in the loaded direction—but there's the Missabe Road up near the top of the list. Up there too is its U.S. Steel cousin the "J", whose ratio of three switching miles (at the 6 mph average used in equating yard engine time to locomotive/train mileage) for every mile over the road should make it impossible to achieve a good record.

Southern, Norfolk & Western, Santa Fe, MoPac—prosperous roads all, and you'd expect a good record from the MoPac if only because of the care with which it must handle all that hazmat traffic. But what is the Boston & Maine doing there, in bankruptcy for these many years yet following through from its Harriman gold and silver awards with a damage ratio a full one third better than the average?

The large, the compact, the transcontinental, the urban, the heavy hauler, the fast, the mountainous and all their combinations are represented among the above-average performers. And, since the average must be somewhere in the middle, it follows that some other roads with similar route and traffic characteristics must be *less* successful in getting freight from here to there with a minimum of collision, derailment and other damage to equipment and roadway. The difference isn't trivial, either—Santa Fe's *reportable* damage bill averaged some $10,300,000 a year less than it would had the road had an average record during this period. Some of whatever it takes to achieve a record like that undoubtedly costs hard cash, but it still looks as if there might be quite a contribution to net arising from such performance.

- **How do they do it?** All railroads have safety programs. All operate under the same federal laws and regulations; govern their operations with books of rules that read much the same; share much of the same pool of rolling stock, built and maintained to AAR standards for the most part; adorn their employees' timetables with exhortations proclaiming the prime importance of safety. Yet, results vary, and often far beyond the limits of statisti-

Table I Nine safety leaders

1978-80 Train-accident damage-rate records

Class I freight railroads, 75% or less of class I average damage/TR. MI.

	Train accidents/ million train miles	Reportable damage, $/train mile
Denver & Rio Grande Western	2.1	.095
Duluth, Missabe & Iron Range	15.5	.157
Elgin, Joliet & Eastern	19.9	.174
Atchison, Topeka & Santa Fe	6.1	.230
Southern	10.2	.242
Norfolk & Western	6.6	.263
Boston & Maine	12.8	.267
Missouri Pacific	7.6	.285
Conrail	15.0	.300
Average, all Class I	**13.0**	**.406**

Table II 1978-80 U.S. Railroad Accident, Damage Rates

	1978			1979			1980		
	Train miles, millions	Tr. acc./ millions Tr. Mi.	Damage/ Tr. Mi., $	Train miles, millions	Tr. acc./ million Tr. Mi.	Damage/ Tr. Mi., $	Train miles, millions	Tr. acc./ million Tr. Mi.	Damage/ Tr. Mi., $
Class I Railroads:									
Eastern District	223.7	14.0	.285	227.4	12.1	.309	200.8	11.0	.320
Southern District	124.2	19.5	.543	127.2	14.0	.478	122.2	11.4	.361
Western District	354.2	15.7	.446	363.2	14.1	.471	347.9	13.4	.430
All Class I	702.1	14.9	.412	717.8	12.6	.426	670.9	11.6	.385
Revenue ton-miles, billions		858.1			913.7			918.6	
Class II & III Railroads	49.8	16.5	.333	45.6	14.1	.264	46.8	14.5	.331
Total, all Railroads	751.9	15.0	.406	763.4	12.8	.411	717.7	11.8	.382
Revenue ton-miles, billions		870			927			932	

Source: Train-miles, accident data—FRA ton-mile data—AAR

cally indistinguishable probabilities. Since the externals such as size, traffic, terrain, climate and even prosperity don't seem to correlate very well with the results, are there some identifiable organizational or operational factors common to those roads which seem to achieve better results?

In a negative vein, perusing the 20 or so Railroad Accident Reports annually turned out by the National Transportation Safety Board following its investigations of individual accidents will provide detailed examples of the way communications, regulations, training, equipment, weather, personalities, and human capabilities interact with the laws of physics to permit an accident and determine its consequences. Generally uninhibited by too close familiarity with the traditional ways of running a railroad, reporting often discusses such factors as the distance from the dispatcher's office to the washroom in bringing forward for consideration the sharp focus of hindsight. Is there a common theme? In a broad sense, yes: *the difference between the way things are and the way they're supposed to be*, whether in training, inspection, communication, recording, verification or whatever. The discrepancies are of no consequence—until that one time when they string together.

More positively, how do management, line, and safety officers on three railroads among those with the most consistently outstanding records look at the matter of stopping accidents before they happen and doing it within the framework of productive railroad operations? Informal discussions over a period of many months (a time scale of no importance, given the continuing nature of the challenge) with Rio Grande, Santa Fe and Boston & Maine sought common ideas which shed light on how these roads in their wildly different circumstances have each done so well.

No one claimed to have *the* answer, but among those broad keys to safe operations repeatedly cited (see box) one matter came though loud and clear:

Everyone working on the railroad has to believe that the big boss—and everybody in between—really means it when he says the railroad is to be run safely today, tomorrow, and always.

The hitch in implementing this philosophy, of course, is that valid safety principles have been around long enough to become cliches which read or even sound pretty much the same whether arising from deep conviction or from lip service based primarily on a desire for inclusive derriere coverage. It's not enough to say the right things—they must be *believed*, and, since every employee has the opportunity to set in motion the train of circumstances leading to another entry in the safety statistics, *by each person*. Convincing a vast majority just won't do the job. The road to credibility is long and has too many turnings to map or even summarize, but here are some checkpoints from these railroads.

● **D&RGW: Esprit de corps and housekeeping.** If the Rio Grande ran off its ton-miles at 25 mph on level, tangent track its train-accident damage and casualty rates would still be outstanding; under its actual operating conditions, with main line trackage extending above 10,000 feet and four major summits on heavy-traffic routes with grades that chop the adjusted tonnage rating on a six-axle unit to as low as 950 tons, they are almost unbelievable.

Chief Transportation Officer Larry Parsons and Director-Safety, Rules and Training Roy Eno attribute much of this performance to the close-knit operation possible within an organization of about 3,400 employees where promotion from within over a long period has built up real *esprit de corps* in keeping trains moving over a well-maintained property.

Every personal injury and accident report lands on the desk of President-CEO W.J. Holtman—not an unusual practice for a road of this size. Perhaps less usual are the personal notes that come back asking pointed questions requiring "not just any old answer" and based on the familiarity with the local situations involved that comes from monthly hi-rail inspection tours. "He has a damn good memory, makes constructive suggestions, and loses his cool a little bit if something you say you've fixed still causes a problem." Sharpening the process is the fact that in 1980 the Rio Grande had only 12 train accidents and 196 injury/illness cases to report.

"The willingness of the company to spend money to do something about hazardous situations reported by employees is a real convincer" in getting everyone on board as part of the team to get rid of the lesser problems which represent the difference between average and truly superior performance, observes Parsons. Some items brought up can't practically be eliminated, but there must be some reasonable response to every one.

Rio Grande has had the benefit in recent times of a favorable operating ratio providing the wherewithal to build up the property to high engineering standards matching traffic increases. Close relationships between operating, mechanical, engineering, signal and communications departments in using funds to the best advantage are evident in various ways. Home-road cars are built to more than minimum standards; as a railroad with very little level track on which to park cars, Rio Grande requires hand-brake rigging effective on all eight wheels.

Along and even above its scores of miles of canyon trackage Rio Grande has what may well be a record proportion of slide-fence protection: its own detectors (*RA*, Nov. 10, 1980, p. 27) used in profusion, guard against such dragging hazards as loose lumber tie-down chains. Along the most difficult sections the railroad makes use of track patrols ahead of trains. "With all our curves, high-silicon rail on the high side helps extend change-out periods, but we still have to run a very greasy railroad and the track patrols may have to make adjustments on the lubricators daily at times," notes Parsons. High-water detectors at some points and a full installation of hotbox detectors, monitored in Denver, are important parts of the scheme.

Rio Grande is organized on the divisional plan—though with only two divisions—with division engineers and safety, rules and training superintendents at both Denver and Salt Lake City. "Yes, our roadmasters probably do have wheel gauges in their back pockets," says Roy Eno. "That's part of the game in finding out what really is the problem so it can be fixed. In general, the divisional organization seems to minimize any 'us vs. them' attitudes."

Annual written rules exams for all—including section men who may be involved in operating track motor cars—have been in force since 1969. "The first year some veterans were coming up with 20% and 30% scores, a situation which by now has long since passed. Emphasis is not on passing tests but on training to insure that rules and the reasons behind them are really understood."

Track-train dynamics is an ever-present concern on the Rio Grande. Track geometry measurements come from visits of the FRA's test car; the railroad has studied problem situations by assembling test trains of potentially troublesome cars and observing their action in trips through some of those difficult canyon alignments. A leased FreightMaster Train Dynamics Analyzer van is on the property as part of an engineman training program which also makes extensive use of schooling available from locomotive and air brake suppliers.

Signal tests are also a continuing part of the picture. Locations are selected with some regard to the train dynamics involved in responding to the test signal indication but there are no signals that are completely off-limits. The actual degree of secrecy of "surprise" tests is always a good question, with such phenomena as coded clicks on the radio not unknown in the vicinity. "The important thing is that no one has failed a signal test in many years—the trains are being operated in accordance with signal indications."

- **Constant communication.** Showing up frequently in FRA and NTSB wreck post-mortems are situations in which inability to communicate with, within or between trains, whether inherent in the system provided or from absence or inoperability of the equipment assigned, has been a factor in failure to avoid the accident. Rio Grande's communication system maintains virtually constant 100% communication with all trains—all engines and cabooses are equipped with "heavy" radio gear; in the event it's down, extra portable sets are provided to the crew so that essentially similar capability is maintained. Special repeater systems provide continuous communication throughout the 6.2-mile length of the Moffat tunnel and within canyon segments previously subject to blackout.

"The buck starts with the chief executive officer and goes right down through the departments to the first-line supervisor who has to get the word to the man out in the field."

—Alan Dustin, President, B&M

Condition of the crew is of even greater importance than the equipment. Rio Grande has relatively few locations or runs where trains crews start their duty away from supervision. "Mark off if you're not in condition" is recognized as a directive whose disregard is likely to result from an unexpected call to duty to a crewman who would otherwise have planned his recreation so as to be in shape to work safely. "You simply have to run the railroad so that such situations don't arise or be prepared to live with an occasional delay if you expect crews to do the right thing." For chronic Rule G, drug, financial or legal problems the Rio Grande has operated a troubled employee program (at a location separate from its headquarters to avoid privacy inhibition) for the last five years.

When you get accidents down to minimal proportions the behavior of non-railroad employees becomes proportionally more important; Rio Grande has found that its security-fenced material-storage areas and emphasis on housekeeping all over the system has helped cut down on vandalism, much of which involved use of heavy objects left handily available by courtesy of the railroad.

- **On the Atchison, Topeka & Santa Fe.** Santa Fe's outstanding safety record goes back a long way. Manager of Safety-System R.D. Shaver traces one aspect of the program to a 1969 decision by Larry Cena (then Vice President-Operations) that the railroad would meet or better safety standards being promulgated by the fledgling OSHA rather than get embroiled in questioning its jurisdiction. Anything less would be a reflection on management.

The most far-flung of U.S. railroads until the relatively recent super-system mergers, Santa Fe has, in addition to a "total management commitment" to safety extending from the top through the line organization to the employee on the job, a safety staff organization with three to five full time officers in Chicago and 22 in the field, one or two in each of the 14 operating divisions, and one assigned to each of the five major shops. Each of the three "Grand Division" offices (Topeka, Amarillo, Los Angeles) has an Assistant to the General Manager for safety. With each yard and train service employee required to take an eight-hour written rules test each year, it is a massive undertaking.

Santa Fe has its own statistical personal injury report form, considered "the best in the industry" by its originators—more narrative in style and, they believe, by its concentration on causal factors more effective in helping all concerned to think about what can be done to eliminate similar accidents. Out on the road the Santa Fe people agree that Dick Shaver is a condition, not a theory—on the road about 80% of the time, he is no stranger to any of the divisions and their officers on his twice-a-year divisional housekeeping inspections. "They would a lot rather see an OSHA man then me," recalls Shaver in discussing the introduction of the new reporting forms.

As on the Rio Grande, accident and injury prevention is a concern to be attacked by all departments together. Copies of Santa Fe's "wire" reports of train accidents go directly to Ray Kaelin's Technical R&D office in Topeka as well as to the engineering, mechanical and safety offices.

Bringing injury rates down further from an already excellent level becomes a matter of developing effective campaigns against particular classes of accident and carrying them out without losing control of previous advances. Emphasis on eye protection started in 1977 brought about a 65% reduction, to the extent that only one eyeball has been lost in the subsequent four year period—quite a record for a 32,000 person organization. Toe injuries have virtually disappeared as a result of 92% participation in the M/W and mechanical departments in a safety shoe program in which the railroad contribution is up to $15 a pair—enough to cover the extra cost for models including metatarsal guards.

Three years ago Santa Fe started sending the National Safety Council's "Family Safety" quarterly magazine to the homes of its employees. Its content is strictly oriented to the prevention of accidents off the job; providing it helps emphasize that the railroad's concern for safety extends far beyond the matter of a good set of safety-record numbers to the prevention of misery whenever and wherever. Does family safety awareness feed back into the breadwinner's performance and attitude on the job? Feedback from this not inexpensive program, which has been highly favorable, certainly indicates that any effect is positive.

Programs can't continually be piled upon programs and remain effective. Have any been phased out? Yes—quarterly safety meetings scheduled for many years have been dropped in favor of a personal contact, around the clock program of safety discussions with one or two train crews at a time. This is expected to be more effective in getting feedback into the system which can not only point the way toward refined procedures but generate further dedication.

What's new? *Safety by Objectives*—a logical derivative of Management by Objectives which "was looked at very closely by management before approval" but is now in place—is showing results, and is reported to be winning the hearts and minds of some in the field who were not initially itching for the thinking it entails.

● **B&M: A matter of priorities.** Santa Fe demonstrates that a large, relatively prosperous railroad can be an exceptionally safe one. What about Boston & Maine, with a gold and two silver Harriman's (in Group B) in the last three years and a per-train-mile damage ratio well below industry averages despite being bankrupt since 1970 and having posted the worst record in its class as recently as 1973?

"The buck starts with the chief executive officer and goes right down through the departments to the first-line supervisor who has to get the word to the man out in the field." That's Alan Dustin speaking, and his philosophy is just the same as that of the presidents of the other winners. Are the tools used differently when you're starting broke and from the bottom?

"We had a deplorable accident and personal injury record. Being broke is no excuse. From the work-habit end we had to make it clear, very cordially to start with, that in everybody's interest many of the practices that had been tolerated were going to have to change. This couldn't happen overnight—it had to work its way down through the staff. In some cases it took formal disciplinary actions but in most it didn't.

"Overcoming the effects of long deferred maintenance had to go by stages. There were many things that simply couldn't be fixed at the time—there wasn't the money. We had to rely on inspection to determine limits for safe operation, make sure everybody was aware of the problems, and see that necessary restrictions were observed.

"Once the program was in place the turnaround in our safety record was more rapid than might have been expected, and it generated its own enthusiasm as things improved. Now we're at a point where if we didn't earn a medal we'd be disappointed."

Dustin sees the physical rebuilding of B&M's plant—primarily the track structure on its main line—as a process very much guided by priorities related to safe operation. Slow orders have been largely eliminated; main line track is rated at Class 3, since the 40 mph which that allows fits present scheduling needs, but much of it is actually in Class 4 condition and could be uprated should higher speeds be useful. Meanwhile there is an element of conservatism in present limits.

B&M's minimum-size safety office (R.S. Currier plus whatever assistance—including volunteer—he can promote) is busy primarily with public-related activities such as fighting the road's serious vandalism problem through school-group presentations and assisting fire departments to learn hazmat-accident procedures. "My knees have healed up under the present management, though—it isn't necessary to beg to get support for those safety-related items that are really essential."

B&M does have spirited safety contests between its departments—frequently won recently by the (freight) Transportation forces despite the inherent hazards of being around moving equipment—with appropriate awards at luncheons and ceremonies "to which Indians are more likely to be invited than chiefs." The continuing challenge, as Dustin sees it, is in keeping up interest in what is basically a "dry and mundane" subject. "We need all the novelties we can think of to keep peaked up throughout the organization. Nobody *wants* to get hurt, but we have to keep pushing over a long period of time for the development of safe working practices to the extent that they become habitual and those lapses which lead to accidents just don't occur."

There's no question on the Boston & Maine where that push originates. ■

Safety checklist

Safety being the absence of accidents, it is rarely possible to identify the specific combination of actions and factors effective in eliminating some specific type of accident, let alone to prescribe a program which will insure an exceptionally safe operation overall. Aspects most regularly cited by officials of roads demonstrating in practice that railroading can be safe include:

1. **Bottom-up *perception* of "we really mean it" dedication to safe operation *extending from top management down throughout the organization.***
2. **Close and continuous communication among railroad departments in engineering the railroad plant and equipment for safe, efficient operation.**
3. **Organized and thorough training, testing and recognition program for all classes of employee.**
4. **Progressive discipline where required, uniformly administered.**
5. **Frequent inspection of the property, including emphasis on good housekeeping.**
6. **Capability to communicate to train crews, maintained at all times and places.**

Definitions

Train Accident—A collision, derailment, or other event involving the operation of on-track equipment resulting in damages which exceed the reporting threshold.

Train Incident—An event involving the movement of railroad on-track equipment which results in a death, a reportable injury, or a reportable illness, but railroad property damage does not exceed the reporting threshold.

Non-train Incident—An event arising from railroad operations but not from the movement of on-track equipment, which does not exceed the reporting threshold, and results in a death, a reportable injury, or a reportable occupational illness.

Since Jan. 1, 1975, reportability extends, beyond any rail-highway crossing impact or above-threshold train accident (with or without injury or fatality) to include any injury, to employee or any other person, requiring medical treatment beyond first aid.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Dec. 26, 1981, totaled 254,576 cars, according to the Association of American Railroads. This was a decrease of 31,660 cars, or 11.1%, compared with the corresponding week of 1980. Ton-miles generated by carloadings in the week ended Dec. 26, 1981, are estimated at 11.4 billion, a decrease of 8.9% below the corresponding week of 1980.

REVENUE FREIGHT CARLOADINGS

Commodity	Dec. 26 week	Dec. 19 week	Dec. 12 week
Grain	16,589	23,330	24,384
Other farm products	3,354	4,544	5,717
Metallic ores	15,734	22,624	23,848
Coal	79,867	122,120	127,015
Crushed stone, gravel & sand	4,281	7,903	9,867
Nonmetallic minerals	6,949	11,492	10,763
Grain mill products	9,313	12,529	13,110
Food & kindred products	10,131	14,094	14,523
Primary forest products	6,774	14,743	18,727
Lumber & wood products (except furniture)	3,883	6,162	5,998
Pulp, paper & allied products	12,257	17,801	17,990
Chemicals & allied products	17,485	22,006	22,696
Petroleum products	3,525	5,172	5,081
Stone, clay & glass products	6,889	9,514	11,347
Coke	4,190	5,289	5,787
Metals & products	7,813	11,648	12,048
Motor vehicles & equipment	8,308	13,238	15,109
Waste & scrap materials	4,920	8,544	9,801
Forwarder & shipper assn. traffic	5,865	8,832	9,333
All other carloads	26,332	41,139	43,045
LCL traffic	117	165	264
Total Cars Loaded	**254,576**	**382,899**	**406,453**
Cumulative total,		1981	1980
52 weeks		**21,618,093**	**22,597,816**
Estimated revenue ton-miles (billions), 52 weeks		**915.0**	**918.6**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Dec. 19, 1981, totaled 34,485 cars (1.0% below the corresponding 1980 week) and 63,704 trailers or containers (up 2.6% from 1980). Cumulative volume for the first 51 weeks of 1981 is 1,680,754* cars (up 2.5% from 1980) and 3,060,239 trailers or containers (up 2.8% frm 1980).

*Revised

- *Bessemer & Lake Erie.*—Largest single expenditure in a 1982 capital budget totaling $17,483,000 will be $6,782,000 for construction of an office building at Monroeville, Pa. B&LE will also acquire 752 freight cars (up from 484 in 1981) and three rebuilt locomotives.

- *Canadian National.*—1982 plans call for expenditure of $498 million for road property and terminal improvements; $21 million for acquisition of roadway machines; $12.2 million for shop improvements; $6 million for new intermodal facilities; and $3 million for signal/communications improvements.

- *Elgin, Joliet & Eastern.*—Capital program for 1982 will include purchase of 602 freight cars, rebuilding of 136 cars and one locomotive and expenditures of $240,000 for roundhouse/locomotive shop improvements.

- *Kansas City Southern.*—$19,790,000 fixed-plant improvement program for 1982 will include $11,600,000 for passing tracks, rail relays and other track improvements; $2,500,000 for bridge and culvert work; $2,160,000 for shop improvements; and $1,480,000 for ctc and other signal-system improvements.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	November		October	Eleven Months	
	1981	1980	1981	1981	1980
Built new by carbuilders	1,839	4,574	2,656	38,976	75,206
Built new in RR shops	224	371	244	3,210	5,184
Built new—total	2,063	4,945	2,900	42,186	80,390
Rebuilt	91	7	115	1,053	1,150
TOTAL DELIVERED	**2,154**	**4,952**	**3,015**	**43,239**	**81,540**
Locomotives (new and rebuilt)	45	86	55	655	1,575

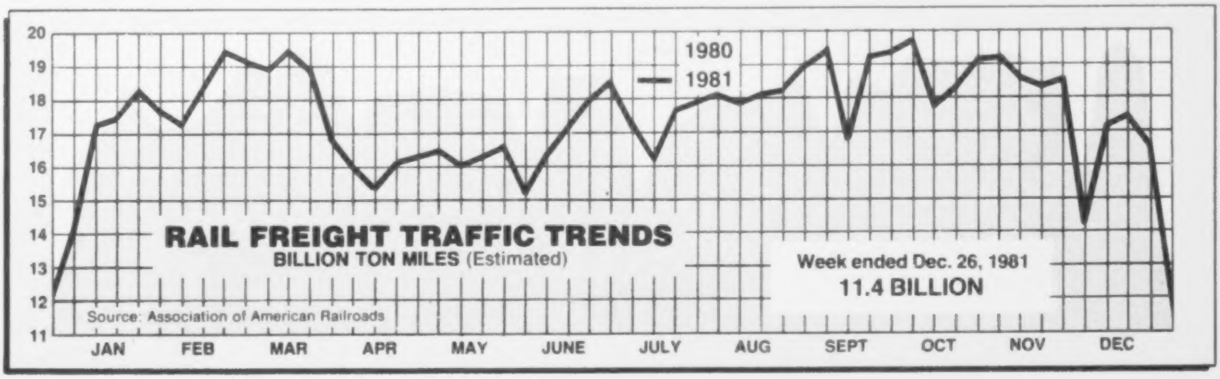
ORDERED

	November		October	Eleven Months	
	1981	1980	1981	1981	1980
To be built new by carbuilders	860	3,230	638	15,522	35,840
To be built new in RR shops	0	700	375	628	3,815
To be built new—total	860	3,930	1,013	16,150	39,655
To be rebuilt	0	0	0	1,100	1,063
TOTAL ORDERED	**860**	**3,930**	**1,013**	**17,250**	**40,718**

ON ORDER AND UNDELIVERED

	December 1		November 1	Average backlog	
	1981	1980	1981	1981	1980
To be built new by carbuilders	15,802	51,337	16,685	29,052	76,415
To be built new in RR shops	1,922	4,883	2,146	2,794	5,431
To be built new—total	17,724	56,220	18,831	31,846	81,846
To be rebuilt	47	13	138	270	264
TOTAL ON ORDER	**17,771***	**56,233**	**18,969**	**32,116**	**82,110**
Locomotives (new and rebuilt)	166	472	184	307	834

*Due to revisions of some orders, the December 1, 1981 backlog has been increased by 96 cars.



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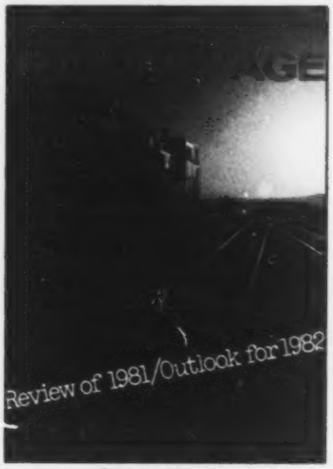
Review of 1981/Outlook for 1982

RAILWAY AGE

January 25, 1982

FEATURES



Cover article, page 17

Outlook for 1982

17 **In adversity, surprising strength**
Despite the recession, railroads look for another year of relatively good earnings and a gradually rising rate of return. But with vast amounts of equipment in storage, rolling-stock manufacturers see hard times ahead.

22 **Excess power cuts builders' backlogs**
The locomotive builders have new fuel-efficient models on the market—but it will be a weak market as long as thousands of units of power are in storage.

28 **Washington: A backlash in '82?**
The railroads have won important deregulatory and tax reforms. Now, some of their traditional adversaries are saying they may have won too much.

Review of 1981

33 **Outperforming a weak economy**
For the national economy, it wasn't the best of times. But for railroads, it was one of the best years, financially speaking, in recent memory as they learned to work in a deregulated competitive climate.

49 **No blues at Blue Island**
Evans Railcar had its first coal-car teardown at Blue Island, Ill.—and found a seven-year-old gondola in good shape after 300,000 miles.

54 **Arkansas Power & Light gets on track**
A rail spur to the utility's new $800-million coal-fired generating plant will eventually handle an average of 12 110-car unit trains a week.

Page 28

Page 49

NEWS

4 Short and significant
10 RRS: Is there a better way?
10 Potlatch keeps a lifeline open
11 ICC turns down SCOT-5 request
11 RPI's goal: 100 new members
14 Sweden looks at U.S. crossing protection
61 The Railroad Market

COMMENT

3 Inside
11 Watching Washington
12 Lines on Labor

DEPARTMENTS

52 People in the News
52 Transit
52 Suppliers
52 Industrial traffic
57 100 Years Ago
58 Advertising sales
59 Letters
61 Carloadings
62 Classified advertising
63 Professional cards
63 Guide to advertisers
64 Products Report

COVER:
BN photo by Dick Steinheimer

Review of 1981

Outperforming a weak economy

Unexpected strength in coal, ore, and piggyback loadings—and a welcome, though somewhat diluted, dose of deregulation—helped the industry buck a recessionary trend.

If the bottom line is the real and true and final measure of an industry's performance, then the railroad industry performed relatively well in recessionary 1981.

Several factors contributed to a showing that was in many ways surprising. Traffic did not drop off to the degree that it has in past recessions. Rate increases were being granted without the long delays experienced in the past. Railroads had an ample supply of motive power and freight cars—in many cases, more than an ample supply. Fixed plant was in good shape, and it got better during '81 as spending for both property improvements and maintenance increased. Labor costs came under tighter control, though wage/benefit agreements negotiated late in the year contained wage and cost-of-living increases to be applied retroactively. Deregulation did not bring the upheaval it had brought to the airline and trucking industries, where freedom-of-entry provisions and day-to-day rate-cutting put new companies in business and left established ones gasping.

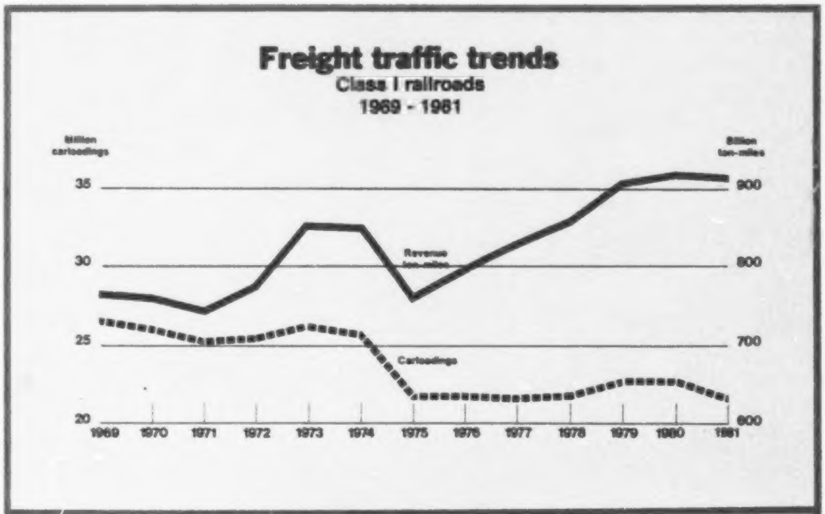
On the other hand, while traffic as measured in carloadings held up well, the total numbers were skewed by the strength of such bulk commodities as coal and iron ore. Declines were recorded in most commodity categories, and nobody could be sure when the trends would be reversed—not with such key industries as automobiles and housing still in a deep slump.

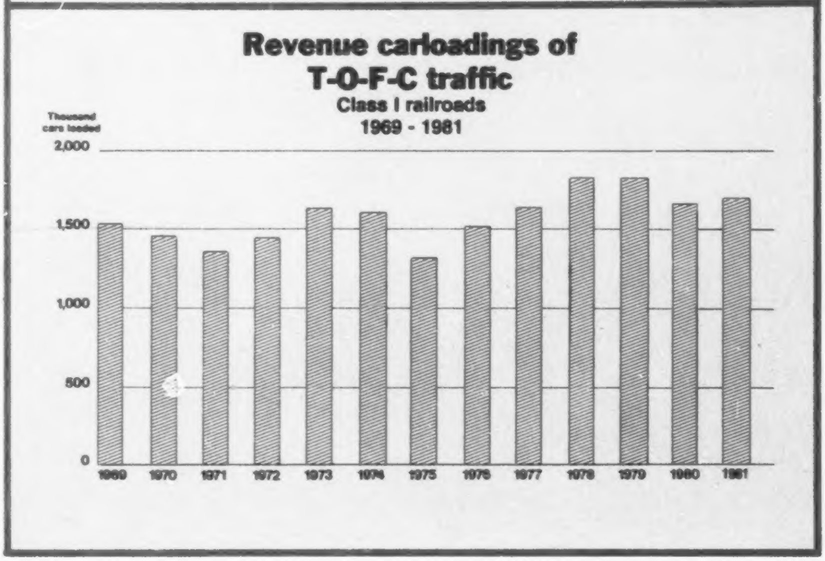
Fuel prices, a vital consideration to an industry that uses about four billion gallons of diesel fuel a year, tended to stabilize. The AAR's cost-index estimate did show an increase, but it was nothing like the year-to-year jumps recorded for the 1979-80 period.

Railroads continued to try to improve efficiency in the use of fuel, where they already had a substantial edge over motor carriers. Refinements in locomotive design helped. So did refinements in operating practices. And railroads and carbuilders alike began looking more seriously at aerodynamic factors in order to economize still further on fuel consumption.

But, while the year was a relatively good one for the railroad industry, it was a crusher for parts of the railway supply business. Locomotive and freight-car deliveries were little more than half the totals recorded in 1980, and new orders dropped sharply, to fewer than 20,000 for new freight cars. Component suppliers suffered both from the decline in new-equipment construction and from the high number of locomotives and cars in storage (because many roads were leaving repairs to stored equipment to the time when the equipment would once again be needed). On the other hand, old equipment was being retired at a faster-than-usual rate, and so an upturn in business would likely trigger more new orders as well as speeding up repair of stored equipment, once the surplus of stored-serviceable equipment was worked-off.

Railroad consolidation, meanwhile, was in a mark-time stage in '81. Burlington Northern/Frisco and Chessie System/


Freight traffic trends
Class I railroads
1969 - 1981


Revenue carloadings of T-O-F-C traffic
Class I railroads
1969 - 1981

Carloadings by commodities: 1981 vs. 1980

Commodity	1981	1980		Incr./Decr. 1981 vs. 1980	
				Cars	Percent
Grain	1,351,946	1,573,315	D	221,369	14.1
Other farm products	224,043	235,841	D	11,798	5.0
Metallic ores	1,606,566	1,479,857	I	126,709	8.6
Coal	5,763,166	5,706,276	I	56,890	1.0
Crushed stone, gravel and sand	619,991	716,491	D	96,500	13.5
Nonmetallic minerals	675,014	770,912	D	95,898	12.4
Grain mill products	738,288	878,704	D	140,416	16.0
Food and kindred products	803,360	925,165	D	121,805	13.2
Primary forest products	938,728	1,002,033	D	63,305	6.3
Lumber and wood products except furniture	397,221	469,447	D	72,226	15.4
Pulp, paper and allied products	996,160	1,060,487	D	64,327	6.1
Chemicals and allied products	1,349,001	1,411,160	D	62,159	4.4
Petroleum products	268,980	296,752	D	27,772	9.4
Stone, clay and glass products	692,939	791,733	D	98,794	12.5
Coke	330,472	276,329	I	54,143	19.6
Metals and products	794,825	820,263	D	25,438	3.1
Motor vehicles and equipment	815,183	853,850	D	38,667	4.5
Waste and scrap materials	607,820	632,733	D	24,913	3.9
Forwarder and shipper association traffic	494,033	555,041	D	61,008	11.0
All other carloads	2,138,435	2,129,742	I	8,693	0.4
LCL traffic	11,922	11,685	I	237	2.0
Total Cars Loaded	21,618,093	22,597,816	D	979,723	4.3

Methods of shipping motor vehicles from factories 1970-1981

Year	Vehicles shipped	Highway %	Railroad %
1970	8,239,000	45.3	54.7
1971	10,638,000	47.5	52.5
1972	11,270,000	47.8	52.2
1973	12,637,000	48.0	52.0
1974	10,058,000	44.8	55.2
1975	8,985,000	46.4	53.6
1976	11,477,000	48.5	51.5
1977	12,639,000	49.3	50.7
1978	12,871,000	47.9	52.1
1979	11,456,000	50.1	49.9
1980	8,067,000	46.8	53.2
1981 (9 mos.)	6,230,000	48.0	52.0

Source: Motor Vehicle Manufacturers Association of the United States, except columns 2 and 3 for 1981 ACF estimated by AAR.

Seaboard Coast Line Industries came into being late in 1980; Norfolk & Western/Southern and Union Pacific/Missouri Pacific/Western Pacific were moving toward what should be decision-time in 1982.

Conrail showed a profit, according to generally accepted accounting principles, despite a sharp decline in carloadings. Amtrak? It fought off, for the most part, the best Administration budget-cutting efforts.

And overall, with deregulation in place and working (somewhat), with fixed-plant in excellent shape and with equipment ready to roll, the industry would appear to have come through '81 well-positioned for economic recovery.

Traffic/service

Last year was far from being a record-breaker for railroad freight traffic, with carloadings down for the second year in a row and with ton-miles doing no better than holding about even with 1980 totals.

But, there were bright spots. Coal loadings were up, despite a lengthy coal strike early in the year and a slackening of demand late. TOFC/COFC loadings, normally among the hardest-hit in a recession, finally inched up above 1980 levels in August and closed the year with a respectable increase. Piggyback services, meanwhile, were deregulated, and the ICC gave its approval to a plan for multilevel auto-rack pools, a plan which should produce better utilization of equipment which is among the most expensive in the car fleet.

Carrier/customer contracts became more popular, contracts in some instances covering equipment-supply and service matters as well as volume and freight charges. Contracts of a different sort, initiated by Norfolk & Western and joined in in somewhat similar fashion by Chessie System, helped to break the traffic jam of colliers standing off Hampton Roads, Va., waiting to take on coal from NW and Chessie piers.

Perhaps the most controversial matter involving service in '81 involved Santa Fe and OT-5, the AAR provision covering acceptance of non-railroad cars for loading. Looking at a surplus of railroad-owned equipment and at increased payments for use of non-railroad cars, Santa Fe decided to explore the possibility of cancelling OT-5 authorities in 1982—while a shipper/carbuilder/lessor committee (SCOT-5) was moving in the opposite direction, seeking unlimited use of non-railroad cars. The basic controversy remained unresolved at yearend, but in the meantime Santa Fe had pulled back, deciding to continue to accept use of private covered hopper cars for grain shipments, cars which already had OT-5 authority. Talks would continue, the road said, in an effort to cope with problems of car surpluses and poor utilization of both railroad and private equipment.

Freight rates

Rules issued by the ICC last April allowed for rate adjustments to be made on a quarterly basis in order for railroads to make up for inflationary cost increases. Subsequent increases permitted were 1.7% in June, 2.8% in July and 1.4% in October, with a further boost of as much as 4.7% to be made effective Jan. 1, 1982, with much of this last increase reflecting increased costs because of the pattern of wage/benefit settlements established late in 1981.

Under existing law, railroads and the ICC use a cost recovery index as a basis for both individual and general adjustments, with the index applied in lieu of the evidentiary proceedings previously required. General increases will be available to the carriers into 1982; the Commission may elect to eliminate them after April 1, but in any event under the Staggers Rail Act of 1980 such increases must be eliminated by Jan. 1, 1984.

As for rate adjustments being made by individual roads, activity in three areas dominated in 1981. More and more railroads were entering into more and more contracts with more and more customers, contracts obligating carriers and customers with respect to such factors as volume, rate, service and equipment supply. Rate surcharges were applied by some roads on a number of kinds of traffic in order to boost the traffic out of the unprofitable or marginal category. And, especially in the West, piggyback shippers benefitted—at least in the short run—by a series of competitive rate cuts.

Financial results

Early-on, it became apparent that the railroad industry generally would not suffer the hardships in the 1980-81 recession that it had suffered in past recessions during the 1970s. Ordinary income for 1980, reported last April, showed a substantial increase from 1979 levels, and quarterly reports for '81 showed the trend continuing.

For first-quarter '81, ordinary income was $636.4 million, up from $263 million in 1980; for the first half of '81, earnings totaled $977.3 million, up from $438.5 million in the comparable 1980 period. Final figures on 1981 are not yet in, but for the 12 months ended Sept. 30, net income after fixed charges was estimated at $2.008 billion, which worked out to a rate-of-return on investment after depreciation of 5.15%, up from 4.13% in calendar 1980.

But, while rate-of-return was moving in the right direction, it still fell well under what the ICC viewed as an adequate return based on the cost of capital. For example, after looking at results from 37 railroads for 1980—a year for which it regarded adequate return at 12.1% or better—the Commission reported in September that it found only three carriers at or above that percentage; Fort Worth & Denver, Clinchfield and Pittsburgh & Lake Erie.

Meanwhile, every index of expense items was showing an increase for 1981. With 1967=100, the index for wage rates and supplements was estimated at 374.1, the index for fuel at 1,097.3 and the index of wage rates and all material prices (including wage supplements) at 414.6.

Capital expenditures

Capital spending by Class I railroads dropped last year by upwards of 8% overall from 1980's total of more than

Freight and passenger traffic 1970-1981

Year	Revenue carloadings (thousands)	Piggyback carloadings (thousands)	Revenue ton-miles (millions)	Revenue passenger-miles (millions)
1970	27,160	1,450	764,809	10,740
1971	25,266	1,356	739,743	8,833
1972	26,105	1,448	776,746	8,558
1973	27,338	1,631	851,809	9,295
1974	26,184	1,610	850,961	10,333
1975	23,218	1,308	754,252	9,934
1976	23,457	1,506	794,059	10,304
1977	23,173	1,689	826,292	10,293
1978	23,355	1,841	858,105	10,222
1979	23,892	1,858	913,669	11,200
1980	22,598	1,661	918,621	10,995
1981	21,618	1,704	e915,000	n.a.

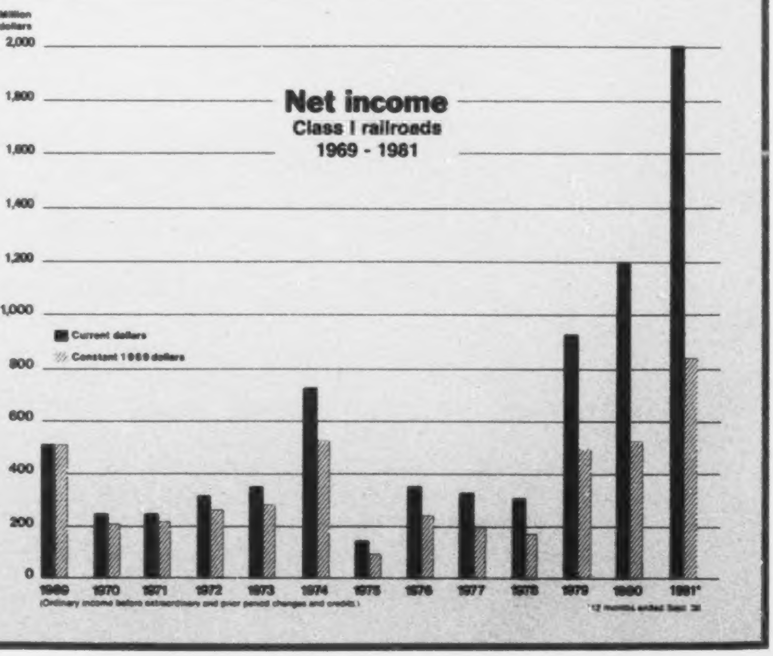
e Estimated
n.a. Not available

Note: Piggyback carloadings shown above include mail and express. Revenue passenger-miles include National Railroad Passenger Corp. (Amtrak) beginning with year 1971 and Auto-Train Corp. for years 1972-77.

Operating revenues 1970, 1980, 1981

	1970 (millions)	1980 (millions)	12 mos. to 9/30/81 (millions)
Freight	$11,106	$26,200	$28,758
Passenger	420	438	521
All other	466	1,464	1,441
Total	11,992	28,103	30,721

Note: Mail and express included in freight revenue.



Railroad cost of capital

	1979 Ex Parte-393	1980 Ex Parte-416
1. Current cost of debt	9.0%	10.0%
2. Current cost of equity	13.5	13.5
3. Debt/equity ratio	40:60	40:60
Weighted average cost of capital to be compared to the rate of return on net investment	11.70	12.10

Source: ICC Decisions

Net railway operating income, rate of return on net investment and net income 1970-1981

Year	Net railway operating income a (millions)	Rate of return on investment after depreciation a (millions)	Net income after fixed charges b (millions)	Net income in constant 1969 dollars (millions)*
1970	$486	1.73%	$227	$215
1971	595	2.12	247	223
1972	654	2.34	319	277
1973	650	2.33	359	295
1974	768	2.70	730	551
1975	351	1.20	144	99
1976	452	1.60	355	233
1977	343	1.24	326	202
1978	427	1.52	307	177
1979	837	2.87	938	500
1980	1,312	4.13	1,192	583
12 mos. to 9/30/81	1,712	5.15	2,008	918

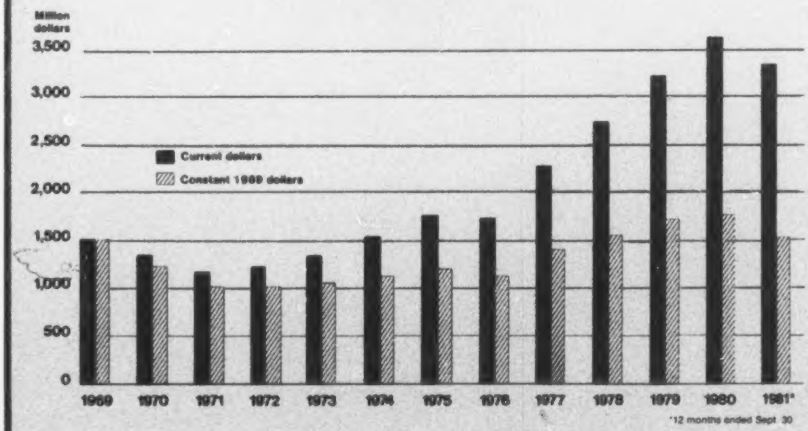
a After provision for deferred taxes beginning in 1971.
b After provisions for deferred taxes beginning in 1971 and including equity in undistributed earnings of affiliated companies beginning in 1974.
* Implicit price deflator for GNP, used to develop constant dollars, was revised in Jan. 1981.

Note: Statistics shown above and elsewhere in the tables are for Class I line-haul railroads, excluding National Railroad Passenger Corp. (Amtrak) and Auto-Train Corp., unless otherwise indicated.

Capital expenditures

Class I railroads

1969 - 1981



*12 months ended Sept. 30

$3.6 billion, even though expenditures for fixed-property improvements went up by about $200 million. In 1980, railroads spent almost twice as much for equipment as they did for plant improvements, but in '81 the gap narrowed considerably and there were indications that in 1982 fixed-plant spending might exceed equipment spending.

For the 12 months ended Sept. 30, 1981, total expenditures were estimated at $3.323 billion, not including spending from non-railroad sources. For that same period, AAR estimated the excess of capital expenditures over retained funds at $534 million, the lowest "margin" since 1974.

Including equipment additions accounted for by all sources, AAR put 1981 freight-car installations at about 45,000 and locomotive installations at about 750. In each case, the totals were little more than half of what they were in 1980.

New technology

Freight-car manufacturers didn't use all of their production capability last year. But their innovative capability? That was a different story: In few recent years has there been such an outpouring of innovation in freight-car design and construction. What did '81 bring?

—The Glasshopper, the prototype filament-wound fiberglass covered hopper car unveiled jointly by ACF, Southern Pacific and Cargill. Among its advantages: Lighter weight, resistance to corrosion, lower labor costs in construction because of the filament-winding technique. SP put Glasshopper out for test while ACF began looking toward the building of a second prototype, and the tests have gone well.

—The Algola, virtually an all-aluminum (except for trucks and running gear) gondola for unit-coal-train service. The carbody was built in Europe and imported by Alusuisse of America, with Santa Fe providing the test opportunity in its York Canyon unit-train operation. Unlike aluminum cars which have been in U.S. service, the Algola carbody is fabricated of wide extruded aluminum panels. It's lightweight, allowing for more payload than even the lightest steel car while holding to the 263,000-pound-on-rail limit; automated construction techniques would reduce the labor-cost factor; and the combination of long carbody life and high residual value could also work to overcome any burden of higher initial cost. At about 40,000 miles, late last year, the prototype underwent a thorough inspection, and the verdict was: No problems. Currently, Algola is scheduled to keep on running on Santa Fe at least until it hits 75,000 miles.

—Innovation in intermodal railcar equipment that just wouldn't stop. Bi-Modal Corporation's RoadRailer made its debut in regular revenue service on Illinois Central Gulf. Production-model ACF double-stack container cars went into operation on SP. Santa Fe built a container version of its highly successful Ten-Pack articulated TOFC car. Trailer Train put 100 four-platform, single-axle-truck 4-Runner cars in service with Union Pacific, these cars also built by ACF. Trailer Train also contracted for three prototypes, a version of the 4-Runner to be built by Pullman Standard and articulated cars to be manufactured by Youngstown Steel Door and Whitehead & Kales. Budd had extensive tests performed on its LP-2000 articulated well-type trailer/container car. Berwick planned to come up with a container car early in '82. Itel Corp., which had acquired rights to the Ten-Pack design, made its first sale, two 10-unit cars for test on Burlington Northern. And several other designs were coming along, in one stage or another of development as both oldline and new suppliers invested in the potential of TOFC/COFC.

Prices and revenue averages — 1968-1981

Year	Consumer price index (1967 = 100)	Producer price index for railroad equipment (1967 = 100)	Revenue per ton-mile (cents)	Revenue per passenger-mile (cents)
1968	104.2	103.1	1.310	3.389
1969	109.8	108.8	1.347	3.608
1970	116.3	115.1	1.428	3.914
1971	121.3	121.1	1.593	4.306
1972	125.3	128.7	1.618	4.747
1973	133.1	134.7	1.617	4.756
1974	147.7	163.8	1.853	5.207
1975	161.2	201.2	2.041	5.396
1976	170.5	216.7	2.191	5.744
1977	181.5	233.5	2.286	5.916
1978	195.3	252.7	2.358	5.947
1979	217.7	277.3	2.599	6.270
1980	247.0	313.1	2.852	7.336
1981 est.	272.5	340.5	3.100	n.a.

n.a. - Not available.
Note: Revenue per passenger-mile figures include Amtrak statistics beginning with 1971 and include Auto-Train for years 1972-77.

Management/labor

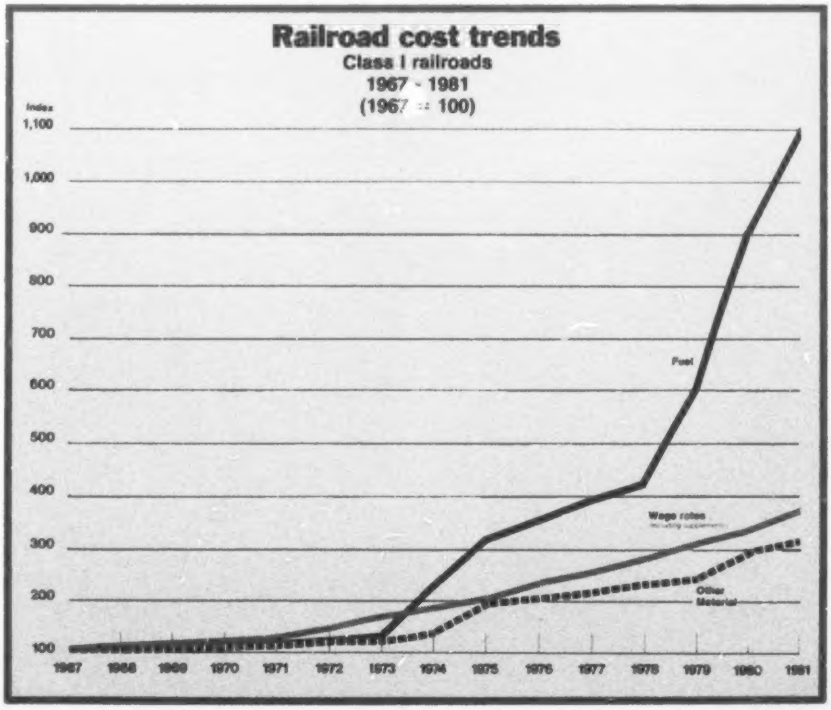
For rail management and the rail labor organizations, 1981 was a year of substantial accomplishment, after a slow start.

Labor served its contract demands shortly after the first of the year, for changes to become effective April 1. But, by agreement, management and labor first tackled the recurring problems of the Railroad Retirement system, problems that were not solved until August with passage of the Economic Recovery Tax Act of 1981 by Congress. Included in the legislation were various provisions affecting the system: Railroad Retirement would have limited borrowing authority from the U.S. Treasury against amounts owed to the system under financial interchange arrangements with Social Security; taxes paid by employers were increased by 2.25% while a new 2% tax was levied upon employees; and a number of benefit adjustments were made.

With that out of the way, negotiators got down to bargaining on the contract demands, and agreement was not long in coming. Individual unions' wage notices varied, with the most common proposal calling for increases of 20% each year for three years. As usual, labor softened these demands, and the agreements that resulted called for basic wage increases of 2% retroactive to April 1, 1981, 3% retroactive to Oct. 1, 1981, 3% effective July 1, 1982 and 3% effective July 1, 1983; continuation of cost-of-living-/allowance provisions; and a number of improvements in various fringe benefits.

At yearend, seven unions—the Clerks, Maintenance of Way Employees and five shopcraft unions—had ratified the pact and the Signalmen had initialed it. Still on the outside, and in mediation, were the operating unions, apparently hung up over carrier proposals for work-rule changes.

Meanwhile, Conrail and its labor organizations were working to get their house in order. The 285 separate labor agreements which CR inherited were consolidated into just 26 agreements; employees represented by most organ-



Condensed income account 1970, 1980, 1981

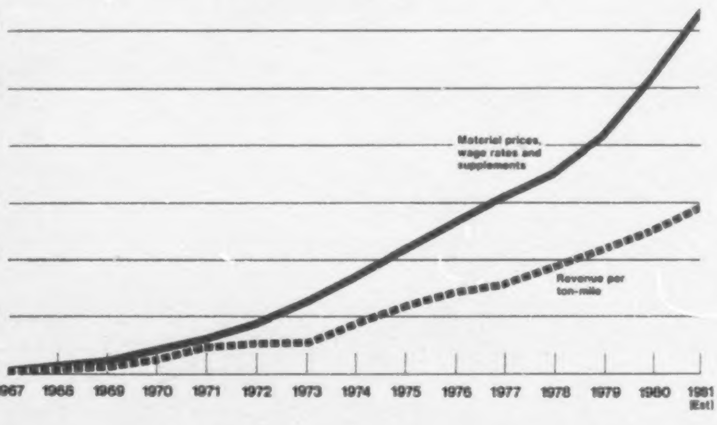
	1970 (millions)	1980 (millions)	12 mos. to 9/30/81 (millions)
Total operating revenues	$11,992	$28,103	$30,721
Total operating expenses[1]	11,478	26,250	28,277
Income taxes on ordinary income[2]	88	291	63
Provision for deferred taxes	–	279	699
Net railway operating income	486	1,312	1,712
Net ordinary income	227	1,192	2,008
Net income in constant 1969 dollars	215	583	918

Note: Data based on the new Uniform System of Accounts (U.S.O.A.), effective Jan. 1, 1978.

1. Operating expenses include rents and taxes other than income taxes.
2. Data for 1980 and 1981 include a small amount of state taxes.

Revenue and cost trends

Class I railroads
1967 - 1981
(1967 = 100)



Trends in railroad fuel prices[a] (cents per gallon)

Year	U.S.	East	South	West
1970	9.92	10.13	10.62	9.68
1971	10.29	10.70	10.98	9.92
1972	10.52	10.92	11.27	10.14
1973	12.26	12.74	12.94	11.84
1974	24.43	25.19	25.06	24.01
1975	28.91	30.05	29.75	28.09
1976	31.44	32.55	32.31	30.67
1977	34.99	36.81	36.18	33.77
1978	36.54	38.48	37.50	35.36
1979	54.47	55.06	52.33	54.91
1980	81.64	82.28	79.33	82.07
1981	98.57	101.41	99.41	96.99

[a] Yearly averages based on AAR Fuel Index.

izations approved a wage-deferral agreement amounting to about $200 million a year for three years; and Congress did its part by repealing the labor-protection program established under the 3R Act and replacing these benefits with a limited federally-funded severance and supplemental-unemployment program.

Conrail

Conrail started the new year with a new owner, the U.S. Department of Transportation, which took control of 80% of the road's Series B preferred and common stock. And the new owner promply indicated an interest in selling off CR's facilities and services to other railroads.

For its part, CR responded by calling attention to its own efforts to reduce its costs and by giving Congress specific recommendations with respect to labor-protection costs, commuter operations and abandonments. A number of these recommendations were reflected in what became the Northeast Rail Service Act of 1981: The labor-protection program set up under the 3R Act was repealed; procedures were established for the transfer of money-losing commuter operations to Amtrak or to local authorities by Jan. 1, 1983; and abandonment procedures were streamlined. The Act also gave CR management two profitability deadlines: In June 1983 there is to be a determination made as to whether CR can be profitable, and measurements are to be made between June and October 1983 to determine if it actually achieved profitability. If CR passes both of those tests, it could only be sold as an entity at least until June 1984.

While the debate was continuing, CR kept plugging away. In 1980, the road lost $244 million and in 1981 it suffered a 9% decrease in carloadings—but still, yearend-1981 figures were expected to show a "modest" profit on the basis of generally-accepted accounting principles. In addition, CR did not require federal funding in the third and fourth quarters of '81, the first six-month period in the road's history when it operated without drawing on federal monies.

Several factors contributed to the improvement. For one, federal investment of almost $3.3 billion to rehabilitate plant and equipment produced a freight-service operation "as good as that provided by virtually any railroad in the country." For another, CR concentrated in '81 on cost-cutting and on sizing plant and equipment capacity and workforce to more nearly match current and projected traffic levels. Rail labor cooperated, for the most part: CR was finally able to consolidate its inherited labor agreements into 26 contracts; and employees represented by most unions on CR agreed to a wage-deferral plan covering a three-year period.

In addition, CR was building its marketing/sales strategy around two goals, first to retain and increase desirable traffic, and second to eliminate losses on unprofitable business. Carrier/customer contracts became an important part of the program, and by yearend CR had about two dozen contracts in effect.

Competitive transportation

While industry spokesmen continued to beat the drums for "competitive equity" in 1981, the Administration and Congress seemed in no hurry to beef up highway or waterway user fees. Coal-slurry-pipeline proposals continued to make the rounds in Washington, but here the Administration did express opposition to a federal law granting eminent domain for pipelines, noting that such decisions should be made by the states involved.

On specific waterways projects, further funding for the Tennessee-Tombigee project was voted by Congress, but by extremely narrow margins in both houses; earlier, the total cost for the waterway had been estimated at $3 billion, and critics argued that as much as $2 billion might be saved if construction were halted. Ironically, at about the time the Senate approved funding for Tenn-Tom, rail industry sources were quoting from a new federal study summary which supported imposition of inland waterway user charges; adding to the irony was the fact that as matters stood, users of the Tenn-Tom would not even be subject to the schedule of user fees which had been imposed in 1978. Then, there was the matter of Lock and Dam 26 on the Mississippi River, a project which railroads and environmental interests have been fighting for years. That fight was apparently ended late in '81 when the U.S. Supreme Court let stand a lower-court ruling which allows the Army Corps of Engineers to proceed with the $44-million replacement of the facility at Alton, Ill.

Deregulation

On the basis of a year's experience under deregulation, it appeared that the railroad industry was handling dereg in considerably better fashion than either the airline or the motor-carrier industry, both of which got dereg earlier and have had more trouble coping with it.

Railroads were not without their problems, however. Uncertainty remained as to what can and cannot be discussed between and among carriers, now that antitrust immunity has been lifted. Surcharges, imposed unilaterally, became a problem for some roads when

Annual rates of inflation 1980-1981

(1967 = 100)

Month	Producer price index	Consumer price index	Spot price index of railroad material prices and fuel
1980			
January	254.9	233.3	430.9
February	260.2	236.5	—
March	261.9	239.9	—
April	262.8	242.6	457.6
May	264.2	245.1	—
June	265.6	247.8	—
July	270.4	248.0	468.8
August	273.8	249.6	—
September	274.6	251.9	—
October	277.8	254.1	470.8
November	279.1	256.4	—
December	280.8	258.7	—
1981			
January	283.5	260.7	491.0
February	286.9	263.5	—
March	289.6	265.2	—
April	292.8	266.8	534.9
May	293.7	269.1	—
June	294.5	271.4	—
July	296.0	274.6	532.0
August	296.2	276.5	—
September	295.5	279.1	—
October	296.0	279.7	529.5
Annualized rate of inflation 10/80 - 10/81	6.6%	10.1%	12.5%

Employees and their compensation 1969 - 1981

Year	Number of employees 1	Number of employees 2	Total payroll (000s)2	Average annual earnings per employee 2	Average Hourly rate 2	Straight-time Hourly earnings 2
1969	—	578,227	$5,362,754	$ 9,274	$3.70	$4.00
1970	—	566,282	5,711,280*	10,086*	4.05*	4.35*
1971	544,497	544,333	5,999,968*	11,023*	4.52*	4.84*
1972	527,235	526,061	6,424,920	12,213	4.94	5.32
1973	524,422	520,153	7,083,338	13,627	5.43	5.83
1974	533,277	525,177	7,475,834	14,235	5.72	6.16
1975	494,348	487,769	7,474,000*	15,324*	6.30*	6.77*
1976	496,491	482,882	8,278,400	17,144	6.96	7.49
1977	501,389	482,731	8,939,400	18,518	7.51	8.15
1978	491,254	471,519	9,700,600	20,573	8.25	8.85
1979	502,802	482,789	10,903,887	22,474	9.02	9.66
1980	480,410	458,994	11,318,453	24,659	9.97	10.74
1981 est.	457,000	436,000	11,902,800	27,300	11.05	11.90

* Adjusted to include retroactive increases.

1 Includes Amtrak beginning in 1971 and Auto-Train for years 1972-77.

2 Excludes Amtrak and Auto-Train.

those surcharges involved interlined traffic. Price-cutting was the flip-side of that problem, and nowhere was it more prevalent than on piggyback services, which have not been all that profitable to begin with; especially on piggyback, rate warfare seemed to be resulting more in traffic-swapping between railroads than it did in luring more traffic off the highways (although TOFC/COFC loadings were in fact up for the year while total revenue freight carloadings were down).

Summing up the first-year results, AAR President William H. Dempsey said that the industry was "generally satisfied" with the Staggers Rail Act of 1980, saying that its "rationale is sound, and we remain convinced that it holds out the only hope for an economically viable railroad industry."

Reorganization

Both Boston & Maine and Milwaukee Road made progress toward reorganization in 1981, and there was at least the possibility that each would eventually be acquired as an operating railroad.

B&M would presumably become a part of a New England combine to be put together by Timothy Mellon and Guilford Transportation Industries (a combine that would also include Maine Central and Delaware & Hudson).

Milwaukee Road, meanwhile, got an expression of interest from Grand Trunk Corp. shortly after its reorganization plan was filed with U.S. District Court in Chicago. What Milwaukee has in mind is operation of a regional core system which could conceivably begin to show a profit by the end of 1983. What would integration of Milwaukee give Grand Trunk and parent Canadian National? A connection between two elements of GTC, Grand Trunk Western and Duluth, Winnipeg & Pacific; routes west and north from Chicago to Kansas City, the Twin Cities and Duluth; entry into traffic-orginating territory in the upper Midwest; and another gateway to the Southeast via Louisville.

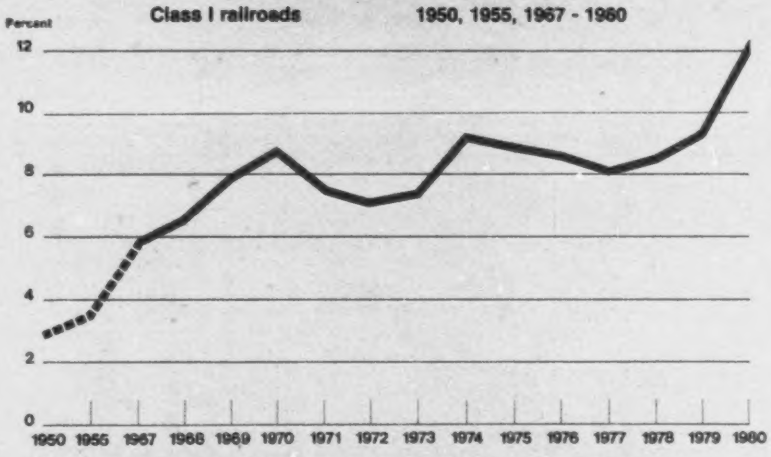
For the other major bankrupt, meanwhile, 1981 did not shape up as a year of great progress. Other carriers were continuing to express interest in operating substantial parts of Rock Island on a permanent basis—Katy, for example, and Santa Fe—but nothing final had been decided by yearend.

Merger/consolidation

The consolidations actually effected during 1981 were not big ones—for example, Santa Fe/Toledo, Peoria & Western; Grand Trunk Western/Detroit & Toledo Shore Line; Southern/Kentucky & Indiana Terminal.

Burlington Northern/Frisco was

Average interest rates on equipment obligations issued



New and rebuilt equipment installed 1970-1981

Year	Freight cars	Passenger-trains cars	Diesel-electric units
1970	75,136	318	1,093
1971	60,618	281	1,276
1972	49,939	347	1,577
1973	59,006	92	1,384
1974	66,824	100	1,395
1975	70,883	272	840
1976	53,205	358	567
1977	53,646	158	992
1978	70,293	44	1,378
1979	96,504	116	1,978
1980	86,628	152	1,483
1981 est.	45,000	n.a.	750

n.a. Not available

Note: Freight-car installations include cars of all railroads and private car lines. Passenger-train car and diesel-electric unit installations include Amtrak beginning with the year 1972 and Auto-Train for the years 1972-1977.

Railway current ratio

Dec. 31	Current assets (millions)	Current liabilities[1] (millions)	Current ratio
1970	$3,582.5	$3,523.9	1.0
1971	3,585.9	3,647.8	1.0
1972	3,611.6	3,672.3	1.0
1973	4,055.9	3,898.0	1.0
1974	4,553.2	4,333.7	1.1
1975	4,640.8	4,572.9	1.0
1976	5,292.8	4,950.1	1.1
1977	5,985.7	5,414.6	1.1
1978	6,873.5	6,270.8	1.1
1979	7,779.6	7,224.5	1.1
1980	8,676.4	7,779.0	1.1
9/30/81	9,212.2	7,916.5	1.2

[1] Includes debt due within one year.

already in place as '81 began, as was the CSX merger which brought together Chessie System and Seaboard Coast Line Industries (Family Lines).

But '81 saw the ICC moving ever closer to decision on a couple of other major mergers, Norfolk & Western/Southern and the consolidation of Union Pacific, Missouri Pacific and Western Pacific. And '81 also saw what could be the beginning of consolidation in New England, with the possibility that Maine Central, Boston & Maine and Delaware & Hudson would be put together under the banner of Guilford Transportation Industries.

Passenger service

Not long after the Reagan Administration came into power, it became clear that one of its budget-cutting priorities would involve deep cuts in funding for Amtrak, cuts which Amtrak said would pretty much restrict service to the Northeast Corridor. The Administration, however, soon found Congress to be of another mind, thanks in large part to expressions of support for Amtrak from the voters. As a result, Amtrak wound up with $735 million for FY 1982 and $788 million for FY 1983; interest payments to the government were also deferred, while the formula for paying for 403-b service was changed so as to provide for a greater eventual contribution from the states involved.

While Amtrak was under pressure from the Administration to drop money-losing intercity services, it faced the real possibility of having to pick up money-losing commuter operations from Conrail; under the Northeast Rail Service Act of 1981, procedures were set up for the transfer of CR commuter services to Amtrak or local authorities by the first of next year.

Index of wage rates and material prices
1968 - 1981
(Average 1967 = 100)

Year	Wage index	Wage rates and supplements	Fuel	Other material	Total material	Wage rates and prices	Wage rates and prices including supplements
1968	105.1	106.3	103.5	102.6	102.7	104.7	105.7
1969	112.2	113.6	106.7	105.6	105.8	110.9	112.3
1970	122.7*	125.6*	110.5	109.4	109.7	120.2*	123.0*
1971	136.8*	139.4*	114.6	113.5	113.7	131.2*	133.7*
1972	149.5	153.4	117.1	118.7	118.1	141.8	145.6
1973	164.4	173.9	136.5	122.9	126.7	155.2	163.5
1974	173.4	189.1	272.0	142.1	178.9	174.7	186.8
1975	190.8*	207.1*	321.9	190.2	227.2	202.2*	212.6*
1976	210.7	232.0	350.1	203.2	244.5	221.3	235.4
1977	227.3	251.6	389.6	217.2	265.3	239.2	255.4
1978	250.0	276.5	406.9	230.6	279.9	259.4	277.4
1979	273.2	303.8	606.4	252.5	347.8	296.5	315.9
1980	304.1	333.2	908.8	291.4	455.1	351.4	366.7
1981 (prel.) .	332.0	374.1	1097.3	314.8	521.5	391.3	414.6

*Reflects inclusion of retroactive wage increases.

Capital expenditures and retained funds
1970-1981

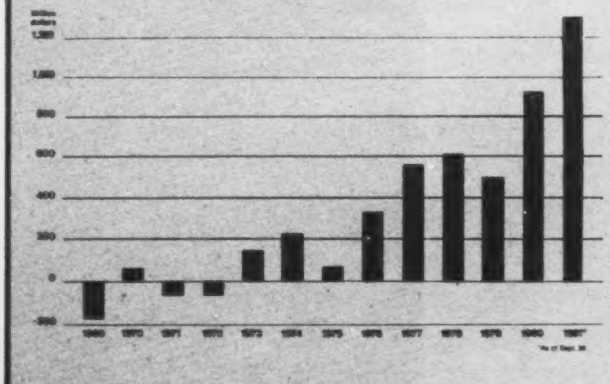
Year	Gross capital expenditures Rolling stock (millions)	Other facilities (millions)	Total (millions)	Retained funds* (millions)	Excess of capital expenditures over retained funds (millions)
1970	$ 993	$ 358	$1.351	$ 618	$ 733
1971	864	314	1.178	784	394
1972	848	368	1.216	923	293
1973	893	449	1.342	964	378
1974	1.038	527	1.565	1,091	475
1975	1.303	486	1.790	622	1,168
1976	1.175	550	1.725	683	1,042
1977	1.540	751	2.291	763	1.527
1978	1.883	855	2.738	727	2,011
1979	2.285	1.039	3.323	1.390	1,933
1980	2.346	1.275	3.621	1.822	1,799
12 mos. to 9/30/81	1.856	1.467	3.323	2.789^e	534^e

*Retained funds represent income before extraordinary items, plus deferred taxes and depreciation and retirement charges, less cash dividends and equity in undistributed earings of affiliated companies.

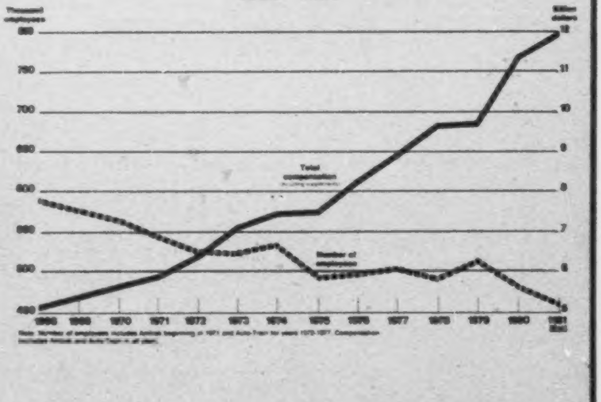
Note Capital expenditures of Class I railroads do not include expenditures for railroad equipment made by private car companies and lessors.

e — Estimated

Net working capital
Class I railroads
1969 - 1981



Employment and compensation
Class I railroads
1968 - 1981



Review of 1981

Car and locomotive orders

1981 FREIGHT-TRAIN CAR ORDERS

Purchaser	No.	Type	Capacity (tons)	Order Date	Delivery Date	Builder
Alaska Railroad	25	Hopper	100	Jan.	May	Chessie
	25	Hopper	100	Dec.		
Allied Chemical Corp.	17	Tank	100	Apr.	4th qtr.	General American
Atchison, Topeka & Santa Fe	25	Caboose	—	Jan.	Aug.-Sept.	Intl. Car
	50	Tank	100	May	Mar.-May	Trinity Ind.
Badische Corp.	14	Tank	100	Mar.	1st qtr. '82	General American
Bangor & Aroostook	150	Box	70	June	Sept.	Berwick
	83	Box	70	Oct.	Dec.	Berwick
California Rail Car	4	Tank	100	Nov.	4th qtr.	General American
Chessie	213	Hopper	100	—	Apr.	Co. shops
Chicago Freight Car Leasing Co.	150	Cov. hopper	100	Jan.	May	Thrall
	10	Cov. hopper	100	Oct.	Oct.	Portec
	10	Cov. hopper	100	Nov.	Nov.	Portec
Delaware & Hudson	148	Box	70	—	May	Pullman Std.
Denver & Rio Grande Western	2	Air side dump	100	Dec.	Dec.	Difco
Dow Chemical	15	Tank	100	Sept.	4th qtr. '82	General American
	20	Tank	100	Sept.	2nd qtr. '82	General American
Draycutt Corp.	1	Tank	100	June	1st qtr. '82	General American
Evans Lease Fleet	168	Misc.	100	Jan.	Sept.-Oct.	Evans
	350	Refrig.	70	Feb.	Mar.-July	Evans
	150	Tank	100	1981	1981	Evans
	160	Tank	100	1981	1982	Evans
	200	Box	70	Apr.	July-Sept.	Evans
	300	Gondola	100	Sept.	Sept.-Dec.	Evans
	200	Hopper	100	Nov.	1982	Evans
	200	Cov. hopper	100	Nov.	1982	Evans
Florida East Coast	14	Auto racks	90	Nov.	Dec.	Whitehead & Kales
FMC Corp.	1	Cov. hopper	100	June	Dec.	FMC
Gulf States Utilities Co.	605	Gondola	100	Feb.	Sept.-Nov.	Bethlehem
Itel Rail	20	Intermodal flat	—	Nov.	Mar. '82	FMC
Maine Central	200	Box	70	Apr.	July	Berwick
	1	Caboose	—	Apr.	Sept.	Intl. Car
Metropolitan Sanitary Dist. of Greater Chicago	75	Air side dump	100	Sept.	Sept. '82	Difco
Missouri-Kansas-Texas	25	Tank	100	Mar.	Sept.	Trinity Ind.
Missouri Pacific	150	Box	100	Sept.	Jan. '82	PACCAR
	100	Caboose	50	Sept.	Oct.	MoPac
	50	Cov. hopper	100	Nov.	Apr. '82	General American
	319	Auto racks		Sept.	Sept.	Portec
Multi-Systems Intl.	100	Ballast (Twin-Hopper)	100	Feb.	Apr.	Bethlehem
NASA	1	Tank	100	May	1st qtr. '82	General American
North American	225	Cov. hopper	100	Apr.	Oct.	FMC
Pittsburgh & Lake Erie	400	Gondola	100	Aug.	Dec. '81-Feb. '82	Greenville
Railbox Co.	140	Box	—	—	—	FMC
Railgon	1,500	Gondola	—	—	—	Pullman Std.
	387	Gondola	—	—	—	Thrall
	303	Gondola	—	—	—	Bethlehem
	40	Gondola	—	—	—	Berwick
	1	Intermodal (3-unit)	—	—	1982	Youngstown
	1	Intermodal (3-unit)	—	—	1982	Whitehead & Kales
Southern	1,000	Triple hopper	100	Oct.	1st & 2nd qtrs. '82	Greenville
	100	Ballast	100	Nov.	2nd qtr. '82	United American
	500	Intermodal trailer	—	—	—	Fruehauf Corp.
Southern Pacific and St. Louis Southwestern	250	Hopper	100	Apr.	Sept.-Nov.	Ortner
	42	Artic. flat	270	Apr.	July-Nov.	ACF

Purchaser	No.	Type	Horse-power	Order Date	Delivery Date	Builder
Timken Co.	3	Air side dump	77	June	Nov.	Difco
Trailer Train Co.	31	Bulkhead flat	—	—	—	Thrall
	101	Intermodal (4-unit)	—	—	—	ACF
	1	Intermodal (4-unit)	—	—	—	Pullman Std.
Union Pacific	30	Airslide cov. hopper	100	May	3rd qtr.	General American
	10	RD hopper	100	June	4th qtr.	Ortner
	375	Gondola	100	Oct.	1st qtr. '82	Co. Shops
	25	Airslide cov. hopper	100	Oct.	1st qtr. '82	General American
Various Industrial	336	Cov. hopper	100	1981	1981	Thrall
	20	Cov. hopper	100	1981	1982	Thrall
	304	Gondola	100	1981	1981	Thrall
	40	Gondola	50	July	Nov.	Thrall
	60	Woodchip	100	July	Nov.	Thrall
	6	GT gondola	100	Jan.	Mar.	ACF
	252	Tank	—	—	—	ACF
	1,740	Cov. hopper	100	—	—	ACF
	200	Hopper	100	Nov.	1982	Evans
	403	Cov. hopper	70	May	1982	Berwick
Vulcan Materials Co.	20	Tank	100	July	4th qtr.	General American

1981 DOMESTIC LOCOMOTIVE ORDERS

Purchaser	No.	Type	Horse-power	Order Date	Delivery Date	Builder
Amtrak	30	B-B	3,000	—	—	EMD
	24	Electric	7,000	—	—	EMD
Armco	4	B-B	1,000	—	—	EMD
Atchison, Topeka & Santa Fe	30	C-C	3,000	Jan.	May-July	GE
	23	C-C	3,000	June	Nov.-Dec.	EMD
Chicago South Shore	10	B-B	2,000	—	—	EMD
Corinth & Counce	1	B-B	1,000	—	—	EMD
Curtis Milburn & Eastern	4	B-B	2,000	—	—	EMD
Eastman Kodak	1	B-B	1,500	—	—	EMD
Family Lines	32	B-B	3,000	Mar.	Nov.	EMD
	25	C-C	3,000	Mar.	Dec.	GE
Georgetown	1	B-B	1,000	—	—	EMD
Kennecott Minerals	2	B-B	2,300	—	—	EMD
Missouri-Kansas-Texas	8	C-C	3,000	Feb.	Dec.	EMD
Missouri Pacific	55	B-B	3,000	Oct. •	Dec.	GE
	70	B-B	1,500	Sept.	Jan. '82	EMD
Mobil Oil	1	B-B	1,500	—	—	EMD
New Jersey DOT	17	B-B	3,000	—	—	EMD
Norfolk & Western	6	—	3,600	—	Apr.-May	GE
Phelps Dodge	1	B-B	2,300	—	—	EMD
Southern	22	B-B	3,000	Sept.	2nd qtr. '82	GE
	42	B-B	1,500	Sept.	2nd qtr. '82	EMD

1981 EXPORT LOCOMOTIVE ORDERS

Purchaser	No.	Type	Horse-power	Order Date	Delivery Date	Builder
Angola	12	C-C	2,000	—	1982	GE
CSN-Brazil	3	C-C	1,000	—	1982	GE
Mexico	48	C-C	3,000	—	'81-'82	GE
	22	B-B	2,250	—	'81-'82	GE
Mexico (Industrial Mineral)	1	B-B	1,500	June	Dec.	EMD
Mexico (Sonora Baja)	1	B-B	3,000	Mar.	July	EMD
Mexico (Sureste)	3	B-B	2,000	May	Aug.	EMD
Saudi Government Rys.	5	B-B	1,000	Apr.	Nov.	EMD
	6	C-C	3,500	Apr.	Dec.	EMD
Taiwan	5	C-C	4,200 (elec.)	—	1981	GE
Tunisia	31	B-B	1,000	—	1982	GE
	20	C-C	2,200	—	1982	GE
Venezuela	4	B-B	1,500	Nov.	Apr. '82	EMD
Zimbabwe	25	C-C	2,250	May.	Nov.-Dec.	EMD
	4	C-C	2,250	Sept.	Feb.-Mar. '82	EMD

Market

CARLOADINGS

Loadings of revenue freight in the week ended Jan. 9 totaled 360,717 cars, according to the Association of American Railroads. This was a decrease of 51,945 cars, or 12.6%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Jan. 9 are estimated at 15.4 billion, a decrease of 11.7% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**Jan. 9 week**	**Jan. 9 week**
Grain	21,911	18,720
Other farm products	4,378	4,399
Metallic ores	20,393	18,841
Coal	114,658	93,265
Crushed stone, gravel & sand	8,200	5,670
Nonmetallic minerals	11,442	8,552
Grain mill products	12,859	10,289
Food and kindred products	13,822	11,009
Primary forest products	16,221	10,801
Lumber & wood products (except furniture)	4,599	3,876
Pulp, paper & allied products	16,086	11,929
Chemicals & allied products	23,439	22,052
Petroleum products	5,196	4,318
Stone, clay & glass products	9,729	8,358
Coke	5,296	4,486
Metals & products	11,625	9,736
Motor vehicles & equipment	8,600	4,578
Waste & scrap materials	8,327	5,599
Forwarder & shipping assn. traffic	7,019	26,724
All other carloads	36,768	26,724
LCL traffic	149	134
Total cars loaded	**360,717**	**288,781**
Cumulative total,	1981	1980
2 weeks	**649,484**	**751,051**
Estimated revenue ton-miles (billions), 2 weeks	**28.1**	**31.8**

PIGGYBACK LOADINGS

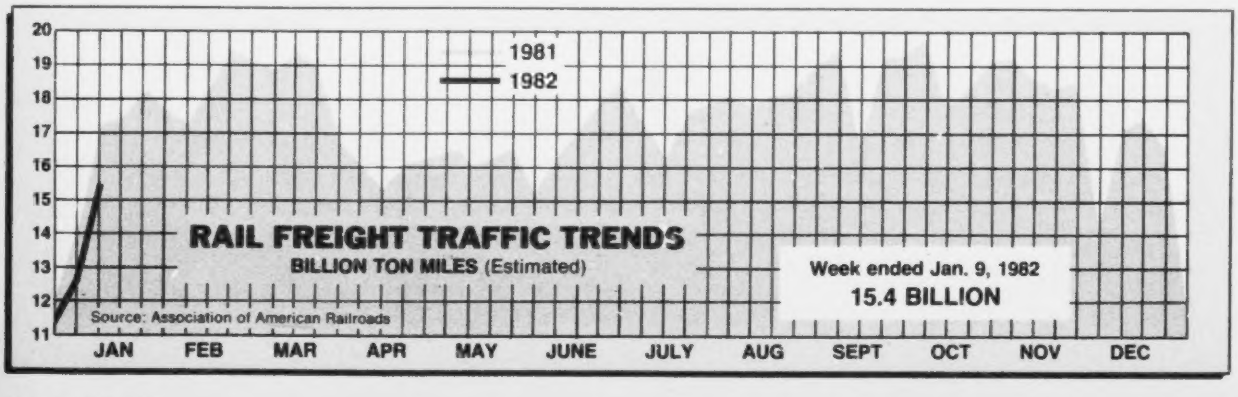
U.S. piggyback loadings for the holiday week ended Jan. 2 totaled 23,390 cars (14.0% above the corresponding 1981 week) and 41,920 trailers and containers (up 13.2% from 1981).

- *Birmingham Southern.*—1982 improvement program will include acquisition of 65 new freight cars, lease of five locomotives, and expenditure of more than $260,000 for yard-office and yard-lighting improvements.

- *Burlington Northern.*—1982 fixed-plant program will include installation of new and relay rail on nearly 1,100 miles of line and acquisition of roadway and track machines costing about $17 million (or three times what BN spent for such equipment in 1981); in addition, BN will spend $10 million for shop improvements, new machinery and tools. Major roadway projects will include rehabilitation of 47 miles of former Milwaukee Road line to reduce grades for trains operating between Yakima and Auburn, Wash.; completion of a new double-track line near Belmont, Neb., to reduce curvature and bypass a tunnel; the beginning of work to replace three 250-foot truss spans on a bridge over the Columbia River at Pasco, Wash.; and installation of ctc between Lincoln, Neb., and Napier, Mo., this project to be completed in 1983.

- *Chicago & North Western.*—Major fixed-plant improvements for 1982 will include installation of about 260 miles of cwr at a cost of $33.3 million; installation of crossties and ballast and grading, $21.4 million; acquisition of 71.5 miles of former Milwaukee Road and Rock Island right-of-way, $4.8 million; construction of additional yard facilities, including new intermodal facilities at Butler, Wis., $2.3 million; installation of ctc between South Pekin and Pottstown, Ill., $2.1 million; extension of microwave between Nagel Park, Minn., and Kansas City, $1.3 million; and acquisition of roadway machines and other work equipment, $11.2 million.

- *Norfolk & Western.*—Major 1982 fixed-plant improvement programs will be: Rail and ballast program, $11,959,000; construction of intermodal facilities, Landers Yard, Chicago, $8,622,000; development and installation of a mechanized accounting system for diesel fuel that will provide physical and accounting controls for receipt, storage and issue for all locomotive fuel at 18 locations, $2,557,000; installation of track, turnout, overhead bridges and traffic controls on a connection with Southern at Altavista/Hurt, Va., $2,792,000; installation of a new coal-sampling system on two conveyor belts at Pier 6, Norfolk, $1,640,000; installation of hydraulic retarders to replace inert retarders at Bellevue, Ohio, Yard, $3,635,000; installation of automatic grade-crossing-protection devices, participation in grade-crossing-separation projects and installation of prefabricated crossing surfaces at a number of system points, $1,700,000; and acquisition of shop and storehouse machinery at various points, $3,094,000.



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ACF: R&D can be a carbuilder's best friend

February 8, 1982

RAILWAY AGE

RG03722494MAR63 20229002F713
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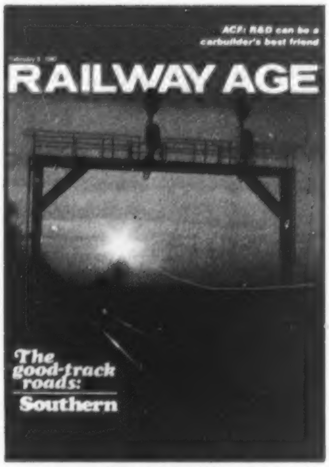
The good-track roads: Southern

RAILWAY AGE

February 8, 1982

FEATURES


ACF: R&D can be a carbuilder's best friend
RAILWAY AGE
The good-track roads: Southern

Cover article, page 14

14 The good-track roads: Southern
This railroad's "waste not, want not" philosophy is nowhere more evident than in the m/w field. Early to mechanize (and economize), Southern today has an excellent track structure acquired at relatively low cost.

22 ACF's R&D commitment: The proof is in the product
It isn't easy to satisfy the demands of two distinct constituencies—the railroads on the one hand, railroad shippers on the other. A continuing commitment to research and development has helped ACF to do just this.

26 A capital year for Mexican rails
South of the border (down Mexico way), there's no talk of recession. The railroads are a growth industry; this year alone will see the investment of $1 billion in capital improvements for National Railways of Mexico.

30 Getting a railroad education: REB makes it easy
In its 73 years of operation, the Railway Educational Bureau in Omaha has helped 175,000 railroad employees become more expert in their crafts. It continues to develop new courses as new needs develop.

32 Honolulu: HART is on hold
Fearing federal budget cuts, the mayor has cancelled engineering studies for a rail/bus transit system. Now, some second guessing is going on.

Page 22

Page 26

NEWS

4 Short and Significant
8 What happened to Train No. 410?
8 BN coal: 93% by unit train
11 Transit tax deals win an extension
11 Commuters: Who pays how much?
40 The Railroad Market

COMMENT

3 Inside
11 Watching Washington
12 Lines on Labor

DEPARTMENTS

34 People in the News
34 Transit
37 Suppliers
38 Letters
39 100 Years Ago
40 Carloadings
41 Professional cards
42 Classified advertising
42 Guide to advertisers
43 Products Report
44 Advertising Sales

COVER: Southern main line near Manassas, Va., photographed by Roy Blanchard.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Jan. 23 totaled 364,381 cars, according to the Association of American Railroads. This was a decrease of 72,347 cars, or 16.6%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Jan. 23 are estimated at 15.9 billion, a decrease of 13.5% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	Jan. 23 week	Jan. 16 week
Grain	25,861	22,682
Other farm products	4,715	4,778
Metallic ores	18,829	17,533
Coal	104,168	88,326
Crushed stone, gravel & sand	7,685	6,215
Nonmetallic minerals	10,213	9,787
Grain mill products	13,986	13,406
Food & kindred products	15,173	13,826
Primary forest products	16,979	10,785
Lumber & wood products (except furniture)	5,558	4,659
Pulp, paper & allied products	16,953	15,919
Chemicals & allied products	22,482	21,063
Petroleum products	5,690	5,401
Stone, clay & glass products	9,716	8,483
Coke	4,371	4,672
Metals & products	11,392	10,383
Motor vehicles & equipment	12,519	11,218
Waste & scrap materials	9,494	8,478
Forwarder & shipper assn. traffic	8,513	7,578
All other carloads	39,942	35,500
LCL traffic	142	174
Total Cars Loaded	**364,381**	**320,866**
Cumulative total,	1982	1981
4 weeks	**1,334,754**	**1,607,972**
Estimated revenue ton-miles (billions)	**58.1**	**67.9**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Jan. 16 totaled 28,473 cars (7.5% above the corresponding 1981 week) and 53,052 trailers or containers (up 5.2% from 1981). Cumulative volume for the first 3 weeks of 1982 is 81,059 (up 2.1% from 1981) and 149,504 trailers or containers (up 4.5% from 1981).

- *City of Chicago.*—Awarded a $5-million contract to Computer Sciences Corp. to provide a communication system for Chicago Transit Authority's new 7.6-mile O'Hare Airport rapid transit extension. The 16-month contract calls for the supply and installation of radio, public address, closed circuit television, cable network, and supervisory control systems.

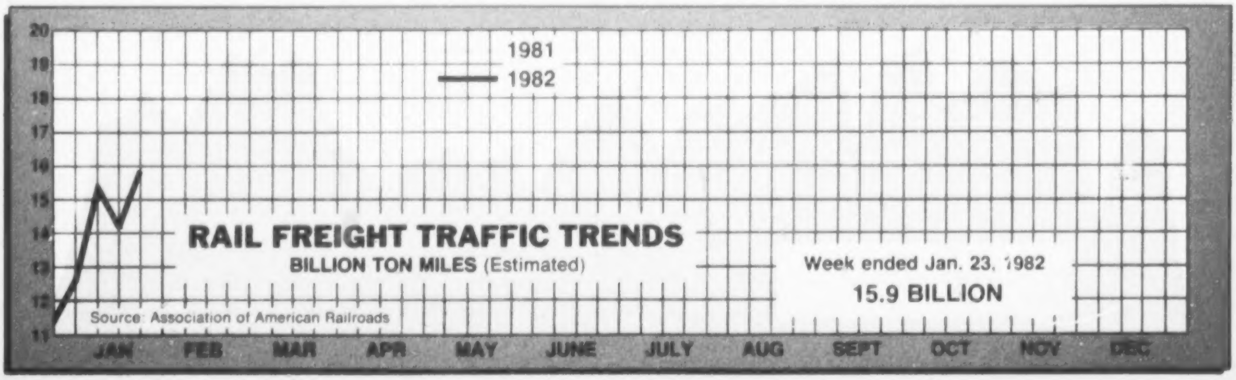
- *Greater Cleveland Regional Transit Authority.*—Is building a $48 million, three-structure maintenance and operation complex including a 200-vehicle storage yard. Features include ENDURO stainless steel exterior siding, underground heating grid, skylighting, and a track transfer table that will move cars over an inspection pit to and from repair tracks.

- *Indonesia.*—Awarded a $45-million, five-year contract to Canadian Pacific Consulting Services Ltd. (CPCS), of Montreal, for assistance in the design and supervision of upgrading a railway and telecommunications network in South Sumatra. The network is to serve the giant Bukit Asam coal mine, which upon completion in 1985 is to start producing a minimum of 2.5 million tons of thermal coal annually.

- *Norfolk & Western.*—Equipment program for 1982 calls for construction of 1,214 open-top hoppers at the Roanoke shops at a cost of $41 million, and purchase of 25 "high-adhesion, fuel-efficient" locomotives costing $29 million. NW's total 1982 capital budget is $185.4 million, an increase of $57.3 million over 1981.

- *Soo Line.*—Will spend more for fixed-plant improvements and less for equipment in 1982, with budgeted capital expenditures of $17.3 million for plant and $6.7 million for equipment. Capital improvements will be concentrated in the areas of rail renewal, upgrading of the roadway-machinery fleet, extension of ctc, bridge renewals and improvements to shop facilities. Estimated 1982 maintenance expenditures are $83 million for m/w (up from $73 million in 1981) and $66 million for m/e (up from $59 million last year).

- *Vapor/Autelca.*—Have entered into an agreement under which Vapor will represent and eventually manufacture Autelca fare collection equipment in the U.S. and Canada. Shepard Transitron, former agents for Autelca equipment, will continue to be associated with Vapor and Autelca in sales promotion. Autelca, a Swiss firm, will have its first U.S. fare-collection installation in San Diego.


RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

Week ended Jan. 23, 1982

15.9 BILLION

Source: Association of American Railroads

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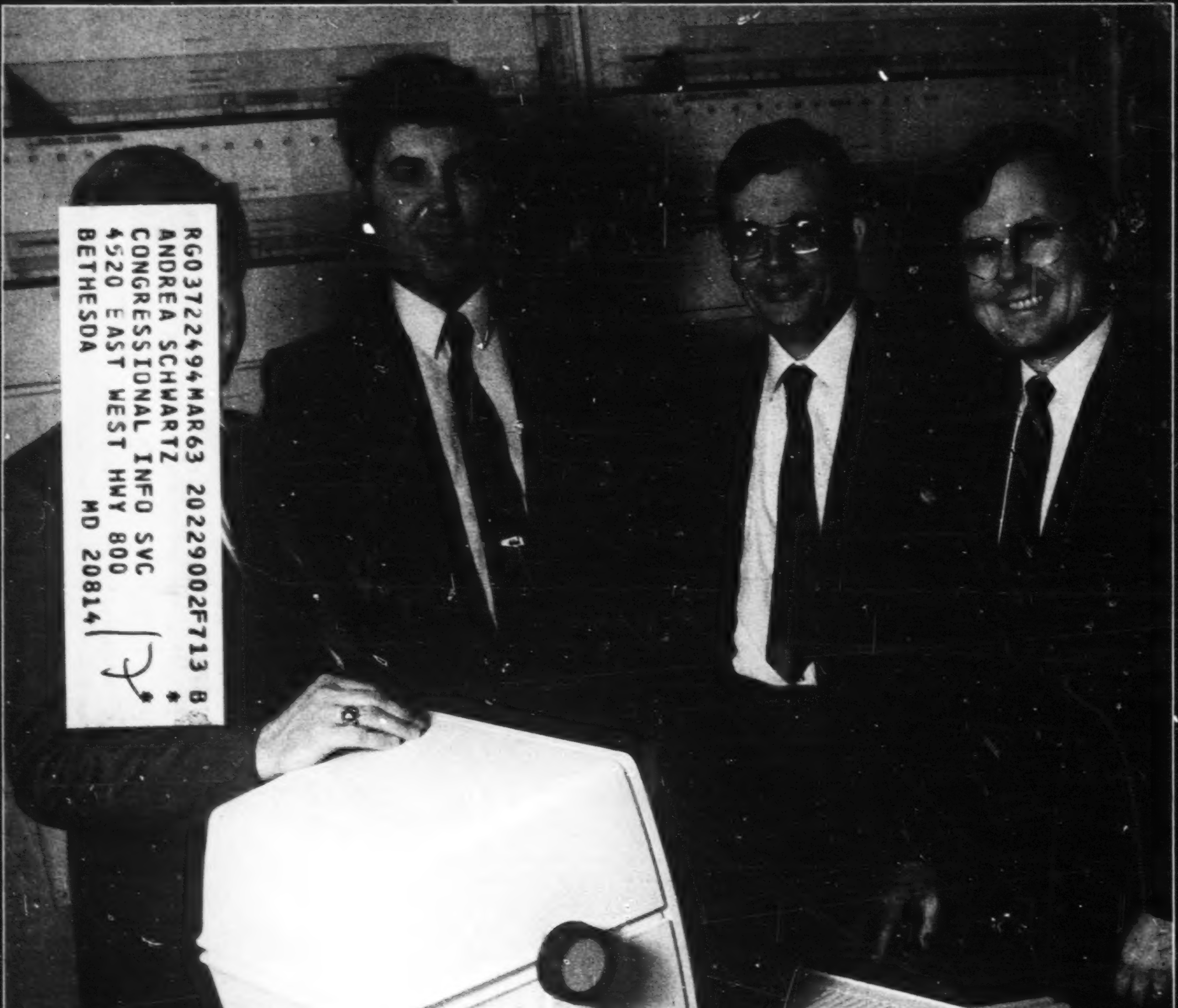
Contract rates: What they do for carrier and customer

February 22, 1982

RAILWAY AGE

MoPac maps a $118-million shop program



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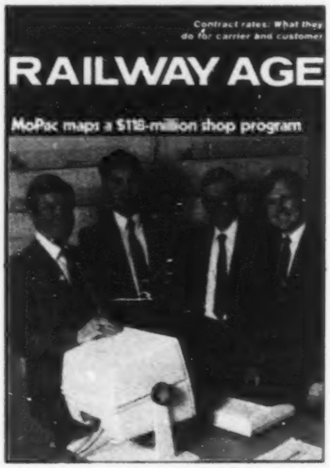
RAILWAY AGE

February 22, 1982

FEATURES


Contract rates: What they do for carrier and customer
RAILWAY AGE
MoPac maps a $118-million shop program

Cover article, page 17

17 MoPac maps a $118-million shop program

MP's five-year plan for upgrading Mechanical Department facilities includes a new $40-million locomotive heavy-repair shop at North Little Rock that will also have (in case it's ever needed) remanufacturing capability

25 A Railroader's Guide to Washington

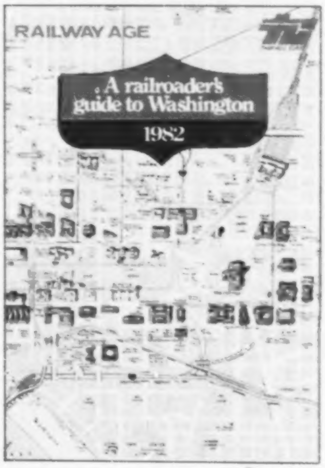
Having trouble getting information out of the nation's capital? This updated Railway Age/Thrall Car directory is your who, where, and how guide.

37 Better rail won't come cheap

Higher metallurgical-quality rail can be made available. But are railroads willing to pay the price? And will the market be sufficient to justify the enormous capital investments that manufacturers of rail steels will have to make?

42 Contract rates are catching on

While they aren't just the ticket for every shipper, contract rates are now streaming into the ICC at the rate of 100 a month. AAR's Richard Briggs says one-third of rail traffic may one day move under such agreements.



Page 25

NEWS

4 Short and Significant
10 FRA, UMTA face big budget cuts
10 Evans Railcar fabricates tanks
14 Nine-months' earnings up 152%
14 Perishables: Back to the rails
14 Slurry lobby calls in the reserves
52 The Railroad Market

Page 42

COMMENTS

3 Inside
11 Watching Washington
13 Lines on Labor

DEPARTMENTS

47 People in the News
47 Suppliers
49 Industrial Traffic
51 100 Years Ago
52 Carloadings
53 Classified Advertising
54 Professional Cards
54 Guide to Advertisers
55 Products Report
56 New Literature
56 Advertising Sales

COVER: MoPac's mechanical department team: Donald J. Roderique, superintendent-cars; Michael L. Wall, superintendent-motive power; John G. German, vice president-engineering; and Donald M. Tutko, chief mechanical officer.

Nine-months' earnings up 152%

While figures for all of 1981 are still not available, the Association of American Railroads on Jan. 28 issued a report on railroad financial performance for the first nine months of the year, and it presented a rosy picture. Class I railroads had ordinary (net) income of $1.475 billion for the first three quarters, an increase of nearly 152% over the corresponding year-earlier period. Revenues rose to $23.2 billion in the 1981 period from $20.7 billion in 1980; operating expenses and taxes totaled $22.1 billion, up from $20 billion.

AAR President William H. Dempsey said the railroad gains, which came in a time of national recession, were largely due to "a slight rise in traffic—due primarily to heavy coal loadings—and to continued rapid recovery of inflationary cost increases, something the industry had not been able to accomplish prior to passage in late 1980 of long-awaited deregulation legislation."

Dempsey added: "Though several individual railroads turned in very good profit figures, not all did so. Furthermore, fourth quarter prospects at the moment do not present nearly the bright picture we developed through the first three quarters. The recession is bound to show its effect on annual earnings when fourth quarter figures are totaled."

While the railroad rate of return on net investment rose to 5.11% for the 12 months ended Sept. 30, 1981—compared with 3.62% a year earlier—Dempsey pointed out that it was still far short of the 12.1% established by the Interstate Commerce Commission as adequate.

Six railroads reported deficits in ordinary income during 1981's first three quarters.

CLASS I RAILROADS IN THE UNITED STATES

For the Third Quarter

		1981 (millions)		1980 (millions)
Operating Revenues		$ 7,996.2		$ 6,994.9
Operating Expenses		7,331.1		6,601.6
Income Taxes on Ordinary Income	Cr.	255.6		63.4
Provision for Deferred Taxes		472.2		93.3
Net Railway Operating Income				
United States		427.6		243.8
Eastern District		117.4	Def.	87.1
Southern District		106.8		85.2
Western District		203.4		245.6
Ordinary Net Income[2]				
United States		497.7		147.8
Eastern District		146.7	Def.	116.9
Southern District		114.2		78.8
Western District		236.8		185.8

For the First Nine Months

		1981 (millions)		1980 (millions)
Operating Revenues		$23,207.6		$20,740.4
Operating Expenses		21,470.0		19,540.7
Income Taxes on Ordinary Income	Cr.	57.6		186.9
Provision for Deferred Taxes		647.2		231.4
Net Railway Operating Income				
United States		1,170.4		801.2
Eastern District		146.7	Def.	92.8
Southern District		345.4		295.1
Western District		678.3		599.0
Rate of Return*				
After Provision for Deferred Taxes		5.11%		3.62%
Ordinary Income[2]		1,475.1		586.3
Ordinary Income[2]				
United States		1,475.1		586.3
Eastern District		231.9	Def.	117.7
Southern District		360.4		272.0
Western District		882.7		432.0

Def. — Deficit
* — Rate of return for 12 months ended Sept. 30
1 — All data exclude Chicago, Rock Island and Pacific Railroad
2 — Income before extraordinary items

Perishables: Back to the rails

In May 1979, the Interstate Commerce Commission deregulated the haulage of most fresh fruit and vegetables. In 1980, the exemption was extended to potatoes, cocoa beans, dried beans, peas, and other edible field seeds. In March 1981, all piggyback traffic was deregulated. For Conrail, all of this has been good news.

In 1981, 19,431 trailerloads of perishable produce moved to East Coast markets via Conrail and its western connecting carriers, compared with 6,915 loads in 1980.

Said James A. Hagen, Conrail's senior vice president-marketing and sales: "This growth, which is in sharp contrast to a downward trend in rail movement of many other commodities in the Northeast and Midwest, reinforces our belief that railroads are most effective, most efficient, and most responsive to customer needs when they are allowed to work within the marketplace."

Slurry lobby calls in the reserves

Facing an uphill battle in Congress, coal slurry pipeline advocates have formed a coalition of groups called the Alliance for Coal and Competitive Transportation (ACCT). Composed largely of coal industry groups, ACCT also includes the American Association of Retired Persons (AARP), the Consumer Federation of America, the International Brotherhood of Teamsters, and four trade unions of the AFL-CIO.

ACCT president is Carl Bagge, who is also president of the National Coal Association. At the time of the coalition's formation, Bagge said, "Since Congress enacted the Staggers Rail Act, which reduced regulatory controls over the railroads, it is now absolutely essential that competition be allowed [in coal transportation]." AARP joined the group because it felt that "consumers will benefit from the construction of coal slurry pipelines even if a particular pipeline is not proposed to serve their area, because railroads will hold down pricing for coal shipments to prevent construction of this competing mode of transportation."

Railroads, though, think that the granting of eminent domain to slurry pipelines would hurt consumers. William H. Dempsey, president, AAR, has said that the bills would "threaten the long-run economic viability of the railroad industry, which is the backbone of the nation's common carrier system."

Market

CARLOADINGS

Loadings of revenue freight in the week ended Jan. 30 totaled 374,185 cars, according to the Association of American Railroads. This was a decrease of 68,645 cars, or 15.5%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Jan. 30 are estimated at 16.2 billion, a decrease of 11.9% below the corresponding week of 1981

REVENUE FREIGHT CARLOADINGS

Commodity		**Jan. 30 week**
Grain		25,662
Other farm products		4,373
Metallic ores		14,986
Coal		109,134
Crushed stone, gravel & sand		8,312
Nonmetallic minerals		9,548
Grain mill products		14,528
Food & kindred products		14,915
Primary forest products		17,604
Lumber and wood products (except furniture)		6,042
Pulp, paper & allied products		17,987
Chemicals & allied products		23,547
Petroleum products		5,407
Stone, clay & glass products		9,931
Coke		4,544
Metals & products		12,126
Motor vehicles & equipment		12,307
Waste & scrap materials		9,477
Forwarder & shipper assn. traffic		9,037
All other carloads		43,520
LCL traffic		198
Total Cars Loaded		**374,185**
Cumulative total,	1982	1981
5 weeks	**1,708,984**	**2,050,802**
Estimated revenue ton-miles (billions), 5 weeks	**74.4**	**86.3**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Jan. 23 totaled 32,749 cars (1.4% above the corresponding 1981 week) and 60,435 trailers or containers (up 4.3% from 1981). Cumulative volume for the first 4 weeks of 1982 is 113,808 cars (up 1.9% from 1981) and 209,939 trailers or containers (up 4.4% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Jan. 14 totaled 4.09 million tons (down 7.6% from 1981). Cars loaded totaled 57,524 (down 14.3% from 1981). Cumulative loadings for 1982 were up to 7.1 million tons (down 12.0% from 1981).

- *Boston & Maine.*—Has accepted delivery of 200 45-ft piggyback trailers from Fruehauf. B&M has also purchased a new PC-90 Piggypacker for use at its East Cambridge intermodal terminal.

- *Montreal Metro.*—Has placed orders with the West German firm of Orenstein & Koppel for 41 escalators to be installed in eight new subway stations. The order, valued at $10 million (Canadian), is to be delivered this year.

- *Southern.*—Plans to install an additional 514 miles of cwr this year—of which 228 miles will be new and 286 relay—at a cost of $65.9 million. Southern also plans to spend $5.3 million for new rail-laying and m/w equipment. Track changes programmed for this year are budgeted at $18.8 million, including $1.9 million for connections at key points with the Norfolk & Western, Southern's prospective merger partner.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	December		**November**	**Twelve Months**	
	1981	**1980**	**1981**	**1981**	**1980**
Built new by carbuilders	2,455	5,151	1,839	41,435	80,357
Built new in RR shops	256	379	224	3,466	5,563
Built new—total	2,711	5,530	2,063	44,901	85,920
Rebuilt	47	13	91	1,100	1,163
TOTAL DELIVERED	**2,758**	**5,543**	**2,154**	**46,001**	**87,083**
Locomotives (new and rebuilt)	101	149	45	756	1,724

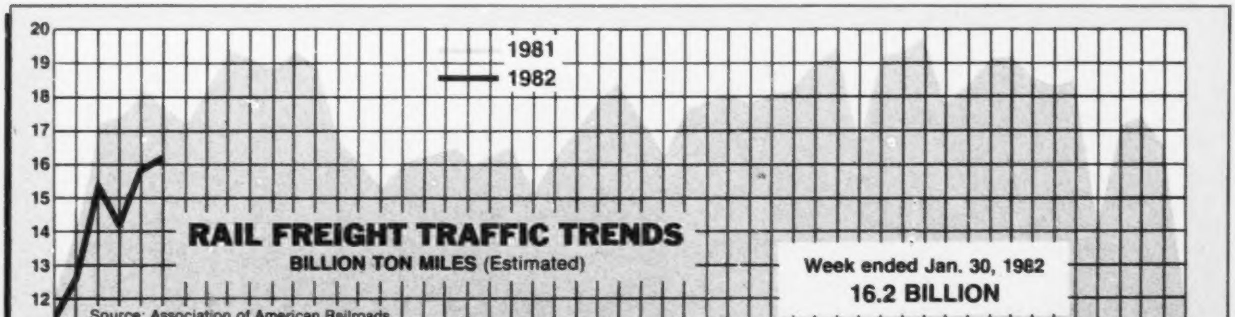
ORDERED

	December		**November**	**Twelve Months**	
	1981	**1980**	**1981**	**1981**	**1980**
To be built new by carbuilders	1,811	4,722	860	17,288	40,140
To be built new in RR shops	0	0	0	628	3,815
To be built new—total	1,811	4,722	860	17,916	43 955
To be rebuilt	900	0	0	2,000	1,063
TOTAL ORDERED	**2,711**	**4,722**	**860**	**19,916**	**45,018**

ON ORDER AND UNDELIVERED

	January 1		**December 1**	**Average backlog**	
	1982	**1981**	**1981**	**1981**	**1980**
To be built new by carbuilders	14,819	47,866	15,802	27,866	74,036
To be built new in RR shops	1,666	4,504	1,922	2,701	5,354
To be built new—total	16,485	52,370	17,724	30,567	79,390
To be rebuilt	900	0	47	322	242
TOTAL ON ORDER	**17,385***	**52,370**	**17,771**	**30,889**	**79,632**
Locomotives (new and rebuilt)	214	665	166	300	820

*Due to revisions and cancellations of some orders, the Jan. 1, 1982, backlog has been reduced by 433 cars.



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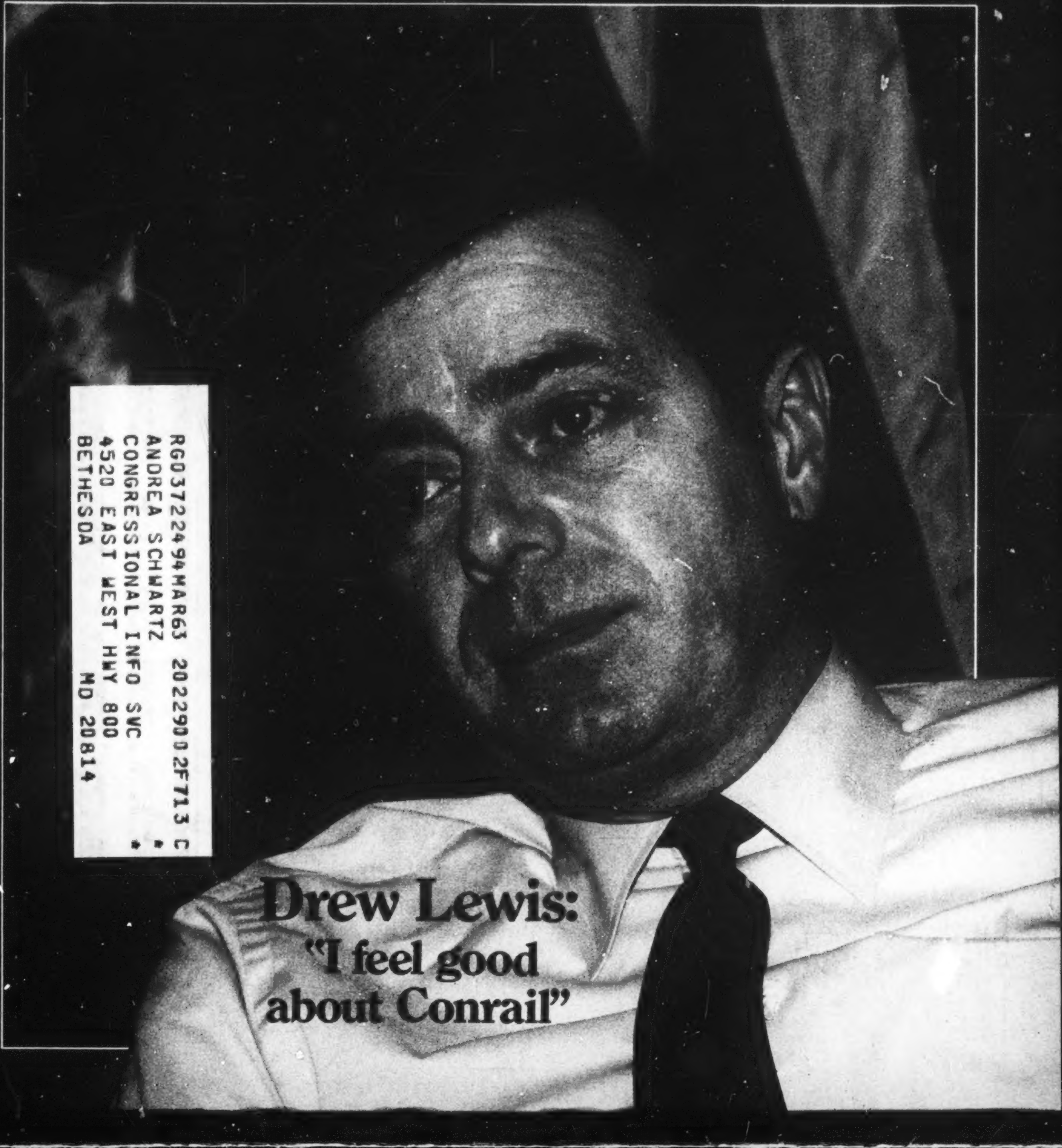
GRS: Staying young at 78 with expanding R&D

March 8, 1982

RAILWAY AGE



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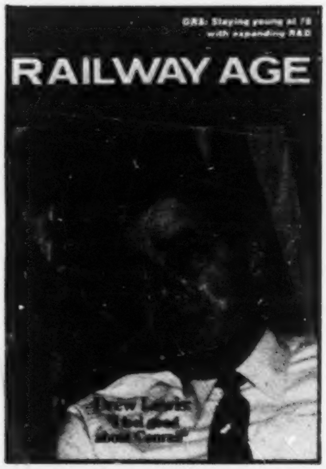
Drew Lewis: "I feel good about Conrail"

RAILWAY AGE

March 8, 1982

FEATURES


GRS: Staying young at 78 with expanding R&D
RAILWAY AGE
Drew Lewis: "I feel good about Conrail"

Cover article, page 19

Page 25

Page 36

19 **Drew Lewis: "I feel good about Conrail"**
In an exclusive interview with Railway Age, DOT Secretary Lewis talks about his hopes for Conrail, Amtrak, transit—and prospects for more rail deregulation.

25 **Track machines: They're working harder, faster**
Here's how manufacturers have responded—and continue to respond—to railroad demands for m/w programs that leave more track-time for revenue operations.

32 **New reefer trailers are designed to keep their cool**
Union Pacific Fruit Express and Freuhauf have come up with a design in which air circulation will be improved through a number of structural changes.

34 **When is it better to load a foreign car?**
Peter W. French, manager of the AAR's Freight Car Management Program, had some interesting answers for railroaders attending a recent Memphis seminar.

36 **GRS: Staying young at 78 with expanding R&D**
Research and development leading to technological breakthroughs—and new product lines—is a tradition at GRS, which has recently doubled its R&D outlays.

46 **Dade County Metrorail takes shape**
Completion of the 20.5-mile Stage I line—plus a downtown feeder system—is now assured; first trains are expected to be in operation by Christmas 1983.

NEWS

6 **Short and Significant**
12 **Pullman: "We're down—but not out"**
14 **Exemption for all boxcar traffic?**
14 **A leaner Conrail posts a profit**
15 **FRA's new Track Safety proposals**
15 **For ICC, help is on the way**
43 **Track Train Dynamics Newsletter**
54 **U.S. seeks to ease coal buyers' fears**
55 **The Railway Market**

COMMENT

5 **Inside**
14 **Watching Washington**
16 **Lines on Labor**

DEPARTMENTS

50 **Letters**
52 **100 Years Ago**
53 **People in the News**
53 **Suppliers**
53 **Transit**
53 **Advertising Sales**
55 **Carloadings**
57 **Professional Cards**
58 **Guide to Advertisers**
58 **Classified Advertising**
61 **Products Report**
61 **New Literature**

COVER: Photo by Stan Jennings.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Feb. 13 totaled 379,174 cars, according to the Association of American Railroads. This was a decrease of 37,552 cars, or 9.0%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Feb. 13 are estimated at 16.4 billion, a decrease of 5.1% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**Feb. 13 week**	**Feb. 6 week**
Grain	26,351	25,108
Other farm products	3,839	3,984
Metallic ores	21,201	18,543
Coal	111,281	107,141
Crushed stone, gravel & sand	8,651	8,546
Nonmetallic minerals	9,861	10,793
Grain mill products	14,248	14,048
Food & kindred products	15,150	14,952
Primary forest products	16,558	15,975
Lumber & wood products (except furniture)	5,335	5,616
Pulp, paper & allied products	17,662	18,036
Chemicals & allied products	24,049	22,960
Petroleum products	4,972	4,918
Stone, clay & glass products	9,588	9,668
Coke	4,708	4,883
Metals & products	10,613	12,009
Motor vehicles & equipment	13,068	10,979
Waste & scrap materials	9,292	9,045
Forwarder & shipper assn. traffic	9,285	9,052
All other carloads	43,153	41,880
LCL traffic	249	256
Total Cars Loaded	**379,174**	**368,392**
Cumulative total,	1982	1981
7 weeks	**2,456,193**	**2,895,343**
Estimated revenue ton-miles (billions), 7 weeks	**106.7**	**121.5**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Feb. 6 totaled 35,362 cars (8.8% above the corresponding 1981 week) and 63,056 trailers or containers (up 7.3% from 1981). Cumulative volume for the first six weeks of 1982 is 188,209 cars (up 5.8% from 1981) and 337,390 trailers or containers (up 5.1% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the ten-day period ended Jan. 31 totaled 5.6 million tons (down 16.4% from 1981). Cars loaded totaled 77,719 (down 18.3% from 1981). Cumulative loadings for 1982 were 16.4 million tons (down 15.8% from 1981).

- *Bay Area Rapid Transit.*—Is seeking bids on a $19-million project designed to improve the fire resistance of BART's car fleet. Included in the project will be replacement of existing car-interior liners with fire resistant materials, installation of fire resistant materials in the sidewalls and ceiling to serve as a "fire stop" and prevent the spread of combustion, coating the interior of the car roof with a fire resistant paint, coating of selected floor panel areas with a protective covering and installation of brake grid heat shields. Bids on the work are due June 1.

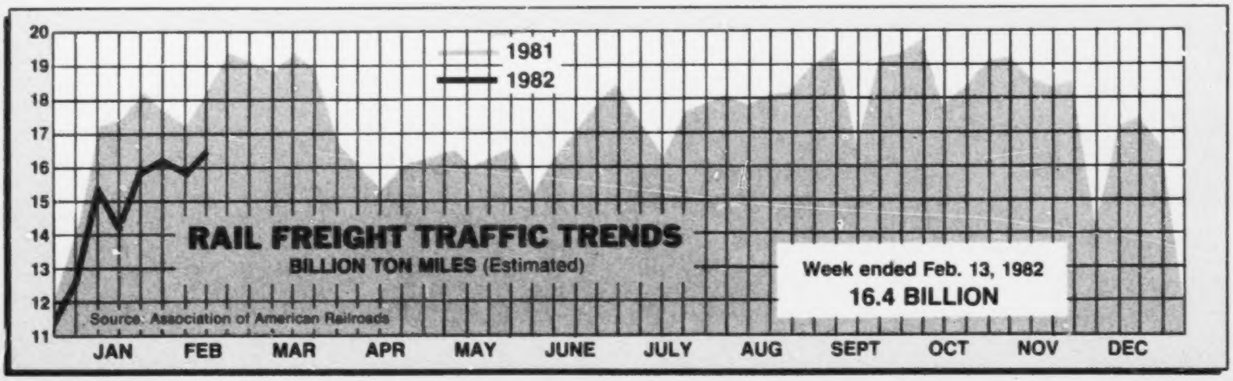
- *Colombian National Railways.*—Will use proceeds of a $77-million World Bank loan to help finance a five-year, $176.7-million modernization program. Items financed by the loan—freight cars, locomotives, rails, track machines, switches, workshop machinery, forklift trucks, and signaling and communications equipment—will be subject to international competitive bidding.

- *Greater Cleveland Regional Transit Authority.*—Awarded a $53.5-million contract to the Tokyu Car Corp. of Japan for the supply of 60 new Red Line rapid transit cars. Funding is provided through an 80% grant from UMTA and a matching 20% local portion to be realized from GCRTA's recent capital improvement bond sale. A prototype car is to be delivered in February 1984 with the entire order to be delivered by February 1985. Use of federal funds requires that at least 51% of the vehicle cost will consist of U.S. products.

- *Norfolk & Western.*—Ordered 25 six-axle, 3,600-hp C36-7 diesel-electric locomotives from General Electric at a cost of "about a million dollars" a unit, according to NW President Robert B. Claytor. The new units will be delivered by the end of June. NW purchased six of the high-adhesion units from GE last spring. NW says the C36-7 uses "significantly less fuel than other high horsepower units in service" and will permit the retirement of less fuel-efficient units to keep NW's locomotive fleet "lean for the 1980s."

- *Port Authority Transit (Pittsburgh).*—Seven builders are seeking to qualify as bidders on an order for 55 light rail vehicles to be used on PAT's new 10.5-mile LRV line, which is scheduled to go into operation on Thanksgiving Day 1984. They are the Budd Co., Bombardier and Urban Transit Development Corp. of Canada, Kinki Sharyo and Tokyu Car of Japan, Siemens-DuWag of Germany, and Ganz Mavag of Hungary.

- *U.S. Steel Corp.*—Has selected Kaiser Engineers to provide engineering services for conversion of an existing structural mill to a rail mill at U.S. Steel's South Works, Chicago. The new mill will be designed to produce approximately 700,000 tons of rail a year in lengths up to 82 feet.



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Texas Utilities blueprints another electrified railroad

March 29, 1982

RAILWAY AGE

Coal traffic forecast: Up again in '82

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An all-[illegible] coal car
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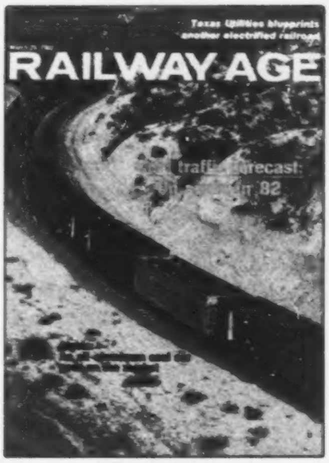
RAILWAY AGE

March 29, 1982

FEATURES



Cover article, page 16

ALGOLA
Santa Fe

Page 22

Page 25

16 Coal traffic outlook: Up again in '82
Despite the recession, coal just keeps rolling along. Forecasts call for increased haulage of domestic coal this year with export traffic holding steady.

22 Algola: Is it worth the premium?
Alusuisse, developer of the aluminum car, and Portec and North American, who will build and market it, say the benefits far outweigh high initial costs.

25 Texas Utilities: A cosy operation
This company has achieved a remarkable degree of self sufficiency by moving its own lignite coal over its own railroads powered by its own electricity.

29 New locomotive design cuts snow intake
A wide-carbody version of Bombardier's HR616, built for CN Rail, has an air-duct system that gives traction motors substantially increased protection.

30 Autos by RoadRailer: The tests look good
The AutoVan version of Bi-Modal Corp.'s rail/highway vehicle can carry up to five automobiles or small trucks. It is easily convertible back into a dry van.

34 ICG's marketing team: Ready to come out fighting
With plant and equipment in excellent shape and a new marketing structure in place, ICG is itching for an economic upturn and a chance to strut its stuff.

43 A solution to thermal cracking?
Standard Steel's new S-wheel incorporates a specially curved wheel-plate that permits the rim to expand freely when abnormal braking subjects it to overheating.

NEWS

8 Japan subsidizes New York car order
12 Costs decrease "across the board"
12 ICC eases rules on new lines
12 Conrail captures big oil move
14 NTSB will sell accident reports
14 Coalporter gets a big brother
54 The Railway Market

COMMENT

3 Inside
10 Watching Washington
14 Lines on Labor

DEPARTMENTS

44 Revenues and Expenses
45 Advertising Sales
46 100 Years Ago
50 People in the News
50 Suppliers
50 Industrial Traffic
54 Carloadings
56 Classified Advertising
57 Professional Cards
58 Guide to Advertisers
59 Products Report
59 New Literature

COVER: The Algola aluminum gondola in test operation in Santa Fe's York Canyon unit coal train; photo by Don Erb, system photographer, Santa Fe, Los Angeles.

By its estimate, demand may grow from 33 million tons in 1985 to a possible 170 million tons by 1995, with Japan accounting for about 60% of the potential 1995 market.

But Burlington Northern is being cautious in assessing what this market will actually mean to BN even if it develops as projected. Physical and chemical characteristics of Powder River Basin coal, Hertog concedes, make it "less attractive" for use in the Far East than higher-quality coals. Stiff competition, he says, will come from coal mined in other western states (including Alaska) as well as from coal produced in Australia, Canada and South Africa. Thus, BN sees a "possible export market developing around 1985 to 1990, with gradual growth once the market begins to accept Powder River Basin coal."

● **UP gears for growth.** Last year was also a year of coal-traffic growth for Union Pacific, with exports to Pacific Rim countries particularly strong. Total coal tonnage went up from 28 million tons to 32.6 million, with export movements rising from 1.2 million tons in 1980 to 4.9 million in '81.

With the coal-export port-facility expansions in progress and planned for Long Beach and Los Angeles, UP is optimistic about its future role—noting also a recent study by the Western Coal Export Task Force which indicates that Japan, South Korea and Taiwan will be importing between 100 million and 116 million tons of steam coal by 1990, with about 25% of that coal expected to come from the U.S.

UP's main route for coal exports is its line between Salt Lake City and the southern California ports, a line which has seen total traffic grow from 10 trains a day to 25 in just the past five years.

To handle the load, present and future, UP has been moving with a plant-expansion program that includes an $8-million line-straightening project in Utah, bridge improvements, construction of new sidings or siding extensions at 16 locations along the route in three states, and construction of a new classification yard at Yermo, Calif.

Union Pacific Corp., for its part, is participating in the engineering and environmental programs which are expected to result in an expansion of the coal-throughput capability at Long Beach, an expansion which could add about 15 million tons of shipping capability by the mid-1980s.

And UP Railroad is also involved in what shapes up as probably the most controversial inter-railroad dispute on coal, the one that involves UP, Chicago & North Western, BN and access to Powder River Basin coal. Last December, UP Corp. and C&NW got commitments to finance a project designed to get C&NW into the coal country; with that entry, North Western would originate coal shipments and then deliver them to UP over a new connector line in Nebraska. UP sees the project as becoming operational by 1984. It sees the C&NW/UP link as increasing UP coal traffic by 25 million tons a year within five years of completion of the project.

But, Burlington Northern, noting that C&NW was not able to come up with the money to meet terms of an earlier agreement covering construction of a line to serve Powder River Basin mines, is fighting back now—and the outcome of this inter-railroad battle remains in doubt.

Rio Grande, meanwhile, sees its coal traffic going up by close to 100% by the end of the 1980s. It's already originating coal for export to Japan and South Korea for use by utilities, steel and cement plants. And, as Assistant Vice President-Fuel Traffic H. E. Cash puts it, Rio Grande "is fortunate in that it serves the heart of the coal country in Colorado and Utah, which contains some of the highest-quality coal in the West."

● **A new image for Illinois coal.** Lower-quality coals, however, need not be ruled out of the export market, as Illinois Central Gulf proved last year with movement of a substantial volume of Illinois Basin coal for export to Spain for use by the cement industry. Illinois Basin coal has long been maligned for its high-sulphur, high-volatility properties, but ICG helped to create an overseas market for it, and ICG is continuing to investigate market potential in such countries as Portugal, Italy, Greece and France. Moreover, once a new coal terminal is completed upriver from New Orleans, there will be a capability for blending Illinois Basin coal with higher-quality coal (probably from Appalachia), and this should work to expand the market for Illinois coal among European electric utilities.

Unfortunately, however, there are no easy ways to forecast export demand. And as Dr. David L. Anderson, vice president-transportation services for Data Resources, Inc., told the PLM conference, "to many U.S. coal producers and transportation carriers, export coal distribution remains a subject fraught with unresolved mysteries and misunderstandings. At times, myths tend to cloud the important underlying factors that will actually determine overseas coal markets in the 1980s as well as possible U.S. participation. Simplistic approaches may produce misleading results, as witnessed by the current over-building of U.S. coal export facilities"—an observation validated a few days later with the announcement that work was being suspended on an East Coast coal-export facility already under construction.

Data Resources' overall estimates are positive. For example, it sees Europe importing more than 110 million metric tons of steam coal by 1990, a 100% increase over 1979 levels. It sees Far East demand climbing to 67 million tons by 1990, a net increase of 54 million tons over 1979 levels. Worldwide, it sees steam-coal trade going from about 70 million tons in '79 to 214 million tons by '90, for a compound annual growth rate of 9.4%.

● **Contradictory signals.** From these forecasts, it would appear that the U.S. is in good position to benefit, since it has better than 30% of the world's recoverable coal reserves. But appearances could be deceiving. As DRI's Dr. Anderson puts it, "the basic problem facing coal-transportation planners is that although distribution systems are often blamed for inhibiting movements—as well as reducing the competitiveness of a country in world coal trade—many other underlying forces are also responsible. Planners seeking to determine optimal coal-transfer-facility capacity, rail investments, oceangoing vessel or port needs must monitor and evaluate a number of disparate and often contradictory coal market signals. In general, analysts have to keep track of changes in world economics, energy, competitive suppliers, political risks, buyer/seller behavior and transportation infrastructure in order to predict coal-transportation needs in the 1980s."

In looking at world coal needs and coal available for export, DRI comes to the conclusion that "coal production available for export exceeds realistic import demands in 1990 by more than 50%." And the U.S., even with its vast reserves, may not dominate world coal trade during the '80s "because American coal is generally more expensive than other export coal, based upon landed price comparisons in both Europe and the Far East."

Even if U.S. coal prices increase at a slower rate than the prices of other exporters, Dr. Anderson says, in 1990 there will still be a significant differential: "As a result, the U.S. will remain the price-setter and perhaps the supplier-of-last-resort—due to its large exporting capacity and benevolent attitude toward wayward trading partners—to world coal markets in the next decade."

● **Public vs private funding.** Taking Pacific rim exports as an example, Dr. Anderson makes these observations with respect to transportation:

"With transportation costs making up more than 70% of total landed coal prices in Pacific Rim countries, the importance of better technology and increased efficiency in rail and oceangoing-vessel movements of coal cannot be overstated. In evaluating the relative competitive-

Norfolk & Western moved 33.6 million tons of coal to its Norfolk, Va., piers in 1981—close to a record—and the trend continues, with a new monthly record set in February.

ness of various coal exporters in the 1980s, planners must consider whether the country has the capability to implement innovations that will reduce costs and increase market penetration.

"An important consideration is whether public or private funds are necessary to make distribution-system improvements. In Canada, for example, the government must commit to spending billions of dollars in the 1980s to upgrade railroad capabilities to export grain and coal. The political decision process is substantially more complex than a private one, and debates on which lines to upgrade and which new terminal/equipment investments to make will go on for years, perhaps inhibiting Canada's ability to be a major coal exporter until the 1990s.

"The introduction of new technologies in transportation, such as a higher-capacity coal railcar or a shallow-draft supercollier, will also have significant impacts on distribution costs. Larger coal cars could reduce per-ton costs by up to 10%, while the higher-capacity oceangoing superbulkers can cut 25% from vessel charges. The nations that introduce effective new coal-distribution technologies will be the most competitive exporters of the 1980s. Since the great majority of the landed price is transportation-related, exporters will get more payback from cost-reducing transportation innovations than from most other coal-related investments in the 1980s."

Finally, he says, "operational improvements, whether in railcar loading, line-haul movements, port unloading or ship-loading, are also crucial in improving competitiveness of U.S. export coal in the 1980s. With U.S. railroads investing heavily in right-of-way and terminal facilities in the early 1980s, the potentials for increased train-operating efficiencies are present. The major question is whether these savings get passed back to the shipper and can then be reflected in lower landed prices for U.S. export coal."

- **Pricing the service.** Transportation costs and savings? That's a question that has no answer yet, for export or domestic coal movements.

Railroads, for example, want complete deregulation on export coal hauling. Producers are extremely nervous, fearing that dereg would lead to rate increases that, in turn, would lead to a deterioration of the U.S. coal industry's position in the export markets.

For both domestic and export moves, though, railroads have a case to make—and their case also applies to coal producers and users. As Rio Grande's Cash points out, there is a common problem "in an inflated economy that is not understood by the general public nor in the political and regulatory arenas. Locomotives, cars, cabooses, signal systems, coal-hauling machinery, wash plants, mining machinery, power plants, coal-burning boilers and so forth are not off-the-shelf items, and the inflation rate over the past few years on these customized items has been closer to 20% annually than to the 12% experienced by the average consumer."

As for the in-place domestic rail deregulation, Cash doesn't see it as having a major effect on coal movements, other than in its contract-rate applications. But, as he notes, "the same basics have to be agreed-to in a contract rate as in a tariff rate, so contract rates are not a cure-all for all problems. Hopefully, the Interstate Commerce Commission will, sometime in the near future, adopt a set of guidelines that we can become accustomed to—before they come up with a new method. All of the changes they have adopted in the past few years have caused confusion for all of us except the lawyers, who beat a path to the bank, confused or not."

- **Captive customers?** Still, good argument or not, railroads are facing a continuing problem on the price front. Carl E. Bagge, president of the National Coal Association—and, ironically, a former railroad lawyer—says that an issue of growing concern is "a serious lack of competition" in the movement of coal. Railroads, Bagge says, "clearly have a monopoly position in the transportation of most coal. The railroads move about two-thirds of all the coal mined, and 85% of what they carry has no alternative means of transport."

The Staggers Act, Bagge contends, was supposed to provide "a measure of protection for shippers where they have no practical alternative and are subject to potential monopoly abuse. Unfortunately, subsequent action taken by the ICC has emasculated that protection, and other actions being considered by the Commission could further reduce regulation protecting consumers from unreasonable transportation costs."

U.S. coal producers and consumers, NCA's president says, "have become very uneasy during the past year as the regulatory balance has shifted to favor the railroads. The intention of railroad deregulation was to allow greater flexibility for the railroads and to still provide some measure of protection for captive shippers, while allowing market forces to determine transportation services where possible. However, such forces can only be relied upon if a marketplace exists. Without a marketplace or regulation in its place, the consumers of coal—notably the consumers of electricity—will be faced with unrestrained pricing by the railroads."

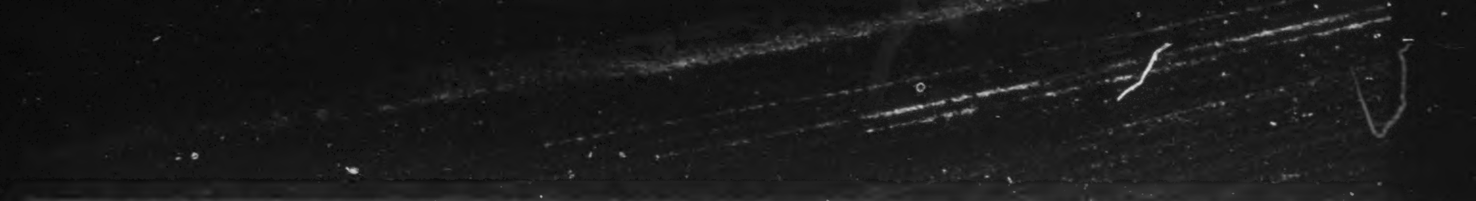
And while the debate goes on, Energy Transportation Systems, Inc., goes on talking about a ground-breaking for 1,400 miles of coal-slurry pipeline in 1983, a line that would stretch from the Powder River Basin of Wyoming into the South. Important issues are still to be resolved, among them financing and acquisition of all the rights-of-way that will be needed. But ETSI looks confident—even without federal eminent-domain rights. And so another factor could be introduced into what is already a complex coal-transportation situation. ■

REVENUES AND EXPENSES OF RAILWAYS

Fourth quarter figures of calendar year 1981

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

		Operating revenues				Operating expenses: Way & structures			Operating expenses: Equipment			Operating expenses		Operating ratio		Income after fixed charges		1981 Net Ry. operating	Net income	
		Freight	Other	Total 1981	Total 1980	Total 1981	Total 1980	1981 Deprec.	Total 1981	Total 1980	1981 Deprec.	Total 1981	Total 1980	1981	1980	1981	1980	Income	1981	1980
Amtrak	3 mos.	–	107,504	107,504	295,427	23,983	24,046	3,600	77,739	84,650	15,422	295,454	299,995	274.83	101.54	(206,657)	(20,007)	(187,948)	(206,657)	(20,007)
	12 mos.	–	1,037,873	1,037,873*	1,105,413*	91,415	88,329	8,664	344,450	347,225	69,803	1,267,275	1,175,712	122.10	106.35	(299,947)	(108,528)	(229,396)	(299,947)	(108,528)
Atchison, Topeka & Santa Fe	3 mos.	552,197	13,189	565,386	592,415	89,213	80,785	2,217	147,801	116,998	23,560	549,938	499,100	97.26	84.24	11,070	95,607	30,976	26,350	70,966
	12 mos.	2,318,056	52,719	2,370,775	2,204,483	392,936	351,776	13,486	533,428	462,587	87,407	2,219,928	1,976,601	93.63	89.66	125,474	214,384	136,937	110,567	162,930
Baltimore & Ohio	3 mos.	269,601	12,177	281,778	254,650	45,205	40,826	1,816	72,305	52,642	8,248	259,596	228,365	91.12	89.67	50,055	21,068	8,341	35,628	14,972
	12 mos.	1,019,297	39,979	1,059,276	945,951	207,268	179,733	7,099	252,058	206,420	30,791	1,000,847	886,973	94.48	93.76	100,613	42,933	32,791	72,656	35,451
Bessemer & Lake Erie	3 mos.	29,462	1,650	31,112	26,590	4,547	2,642	736	2,751	2,304	1,193	22,685	17,468	72.91	65.69	10,677	10,267	2,235	4,480	6,444
	12 mos.	110,783	7,058	117,843	109,871	16,207	13,830	2,785	10,007	14,788	5,089	83,026	74,622	70.45	67.91	42,783	38,805	15,494	23,451	21,435
Boston & Maine	3 mos.	28,945	1,416	30,361	29,330	5,597	4,849	285	7,217	6,715	363	30,106	26,182	99.16	89.26	2,795	4,415	(52)	4,945	937
	12 mos.	116,030	5,888	121,918	115,036	24,898	21,156	1,128	30,838	28,707	1,442	123,160	111,404	101.02	96.84	4,668	6,543	–	6,235	(4,790)
Burlington Northern	3 mos.	908,466	27,785	936,251	831,897	170,435	161,089	5,867	186,728	178,337	18,348	850,720	757,125	90.86	91.01	131,219	89,739	31,517	77,174	64,804
	12 mos.	3,649,237	95,144	3,744,381	2,982,702	706,086	580,046	22,635	770,197	637,573	73,137	3,444,015	2,745,644	91.97	92.05	400,793	287,009	167,559	237,868	222,715
Chesapeake & Ohio	3 mos.	297,733	15,133	312,866	255,723	45,305	33,470	1,935	59,470	51,762	5,092	247,582	216,675	79.13	84.73	124,730	74,577	30,070	89,464	55,642
	12 mos.	1,008,287	48,187	1,057,152	949,007	191,066	157,209	7,590	222,038	193,094	15,971	936,913	828,816	88.62	87.33	235,621	178,898	60,414	175,809	131,528
Chicago & North Western	3 mos.	202,829	24,463	227,292	260,339	47,192	52,638	1,282	50,603	65,623	4,228	226,596	253,309	99.69	97.29	9,591	5,691	1,306	11,138	5,647
	12 mos.	883,055	101,113	983,168	935,736	214,729	193,708	4,762	224,716	237,691	17,362	968,428	922,174	98.50	98.55	8,701	(2,276)	19,584	19,321	(2,431)
Chicago, Milwaukee, St. Paul & Pac.	3 mos.	81,848	12,309	94,157	105,574	34,713	22,660	901	25,768	28,689	4,145	121,365	114,880	128.69	108.81	(21,964)	(628)	(104,877)	12,323	(34,566)
	12 mos.	352,410	51,949	404,359	380,957	103,269	91,379	3,964	119,811	134,191	16,203	477,862	488,995	118.17	125.39	165,095	(78,405)	(152,193)	193,210**	(205,580)
Clinchfield	3 mos.	26,194	263	26,457	23,695	4,806	4,228	114	3,436	3,823	987	21,686	18,530	81.96	78.20	7	3,493	4,412	–	–
	12 mos.	103,252	1,019	104,271	89,866	18,787	15,413	448	14,916	13,665	3,936	79,852	65,856	76.58	73.28	18	12,218	25,639	–	–
Colorado & Southern	3 mos.	42,684	794	43,478	32,790	11,762	5,484	74	7,032	7,248	700	42,329	29,312	97.35	89.39	2,412	5,243	491	1,754	5,692
	12 mos.	156,616	2,480	159,096	126,176	35,377	28,083	276	34,459	28,748	2,816	152,702	121,457	95.98	96.26	25,866	19,039	4,390	23,862	21,161
Conrail	3 mos.	792,801	161,580	954,381	994,417	184,845	186,728	7,115	263,921	274,582	36,709	967,070	1,024,809	101.33	103.06	(14,153)	(45,030)	12,734	(4,436)	(45,383)
	12 mos.	3,338,552	672,570	4,001,122	3,792,936	759,473	769,613	25,074	1,052,500	1,070,015	142,950	4,087,510	4,144,126	102.16	109.26	(118,694)	(407,739)	83,963	(106,616)	(405,781)
Delaware & Hudson	3 mos.	28,320	2,202	30,522	26,512	7,242	6,542	161	8,431	6,721	877	31,802	28,848	104.19	108.81	(3,405)	4,003	(1,179)	(3,405)	(4,003)
	12 mos.	114,294	5,887	120,181	113,174	23,805	22,448	601	33,616	31,914	3,410	127,499	118,705	106.08	104.88	(14,870)	(9,226)	(6,907)	(14,870)	(9,226)
Denver & Rio Grande Western	3 mos.	82,910	1,494	84,404	79,063	13,802	12,235	579	13,218	11,462	2,657	69,836	63,461	82.74	80.26	14,911	14,177	10,447	10,769	10,758
	12 mos.	329,138	5,953	335,091	287,474	59,562	47,467	2,431	51,726	43,772	12,460	286,231	241,157	85.41	83.88	48,588	40,938	30,647	30,295	27,507
Detroit, Toledo & Ironton	3 mos.	18,857	1,733	20,590	20,508	4,261	3,538	71	6,443	3,407	773	21,891	18,302	106.31	89.24	(823)	160	(1,297)	(823)	1,159
	12 mos.	82,374	4,074	86,448	74,164	17,063	12,729	499	24,546	21,797	3,804	86,906	76,586	100.52	103.26	(2,407)	(4,829)	(513)	(2,407)	(3,612)
Duluth, Missabe & Iron Range	3 mos.	18,761	319	19,080	20,081	9,440	5,039	874	2,463	3,249	718	23,624	18,421	123.81	91.73	(2,889)	2,668	(3,519)	(1,391)	1,266
	12 mos.	106,228	2,662	108,890	22,819	31,177	24,302	3,491	12,141	9,627	2,850	90,210	73,732	82.84	79.43	23,191	22,704	6,903	12,935	11,793
Elgin, Joliet & Eastern	3 mos.	14,242	9,125	23,367	27,466	3,305	2,823	195	3,311	2,455	1,880	21,679	20,995	92.77	76.43	3,074	7,650	815	2,201	6,267
	12 mos.	65,600	44,382	109,982	109,931	14,367	13,536	776	15,124	14,083	7,363	94,774	93,795	86.17	85.32	21,027	23,579	5,698	11,517	15,061
Florida East Coast	3 mos.	25,239	447	25,686	28,426	9,114	7,012	237	4,793	5,228	1,206	25,499	25,606	99.3	90.0	1,419	7,952	988	2,220	4,822
	12 mos.	100,484	2,175	102,659	97,542	29,485	21,207	944	16,633	17,171	4,800	93,070	78,357	90.7	80.3	15,761	30,137	5,642	11,810	19,222
Ft. Worth & Denver	3 mos.	43,528	876	44,404	34,715	12,478	8,233	89	11,325	6,862	138	45,900	31,395	103.36	90.43	(995)	3,331	38	539	1,528
	12 mos.	173,461	3,685	177,146	137,035	34,612	24,469	346	38,295	32,211	547	151,478	117,625	85.51	85.83	26,853	19,728	16,353	17,538	12,314
Grand Trunk Western	3 mos.	62,637	1,977	64,614	53,434	8,941	7,088	397	13,304	9,968	746	62,126	50,591	96.14	94.67	4,979	2,183	3,158	5,639	3,505
	12 mos.	224,656	10,009	234,665	194,682	32,892	28,985	1,554	48,514	42,266	4,458	230,219	198,946	98.10	102.19	4,137	(5,213)	7,167	6,837	(966)



Up and coming in export coal haulage is Illinois Central Gulf, which last year moved a substantial volume of Illinois Basin coal for shipment to

Coal traffic:
It just keeps rolling along

Last year was good, and this year promises to be even better, say the experts. But the long-term outlook is clouded by some troubling questions for which there are no easy answers.

By GUS WELTY,
Senior Editor

Coal. Last year, U.S. railroads hauled it in near-record volume, despite a lengthy strike by the United Mine Workers. Last year, railroads moved more than 5,763,000 carloads of it, almost 57,000 more loads than they handled in non-strike 1980. Last year, coal carloadings were at their highest level since 1957, and much of that coal moved in unit trains made up of 100-ton-or-better cars.

What about 1982? For '82, look for continued growth. Look for the pace of coal movements to be less frenetic, since this year there will be no need for pre-strike stockpiling or post-strike replenishing of stockpiles. Look for stored equipment to come out of storage and back into service. Look for continued innovation in equipment, as railroads, producers, receivers and carbuilders continue to try to boost per-car capacities.

How much growth can major coal-hauling railroads expect? That's a good question. But it's worth noting that in 1981, rail carloadings were up by 1% in a year when total coal production fell by 2.3% because of the 72-day UMW strike. It's worth noting that for 1982, the National Coal Association is forecasting about a 10% increase in production, from 802 million tons last year to 880 million tons this year. How much of that coal might be expected to move by rail? About two-thirds of it.

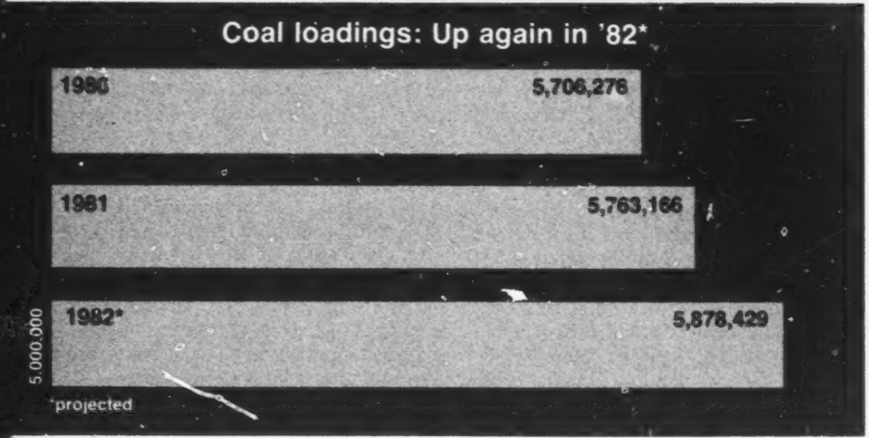
● **Demand—at home and abroad.** Forecasting demand for coal can be tricky, however, for both the export and the domestic market.

Currently, both Chessie System and Norfolk & Western are optimistic that export demand will continue strong. Last year, Chessie and Family Lines handled 36.5 million tons of coal for export, with Chessie alone dumping 28.4 million tons at its Curtis Bay (Baltimore) and Newport News coal piers, and this year the ground-storage capacity at Baltimore will be increased, leading Chessie to believe that overseas shipments could run higher in '82. Norfolk & Western, meanwhile, put more than 33.6 million tons over its Lamberts Point (Norfolk) piers last year, and that total missed being an all-time record high by less than a million tons. Already this year, in 28-day February, NW set a record for a single month's export dumping, with more than 3.9 million tons going over the piers.

Obviously, Chessie and NW see the signs as looking good. At the same time, there are those who are less optimistic, figuring that overseas demand for metallurgical coal will continue at good levels but questioning whether the surge in demand for steam coal will maintain itself.

On the domestic side, the market for coal is growing more slowly that it has been. The economic downturn has brought a drop in industrial production. Energy-conservation programs have cut into the growth of demand for electric power. Milder-than-normal winters for the past couple of years have had an impact on demand for power (though 1982 has seen that "trend" reversed in many

Spain. ICG is scouring Europe for other markets.



Coal loadings: Up again in '82*

parts of the country).

With growth in demand down, some utilities are taking a second look at expansion plans and postponing construction of new generating stations. Too, utility and industrial plant conversions to coal have been taking place more slowly than some forecasts had indicated they would. One problem here is that environmental exemptions may be needed before a conversion can be made, and this can slow the process. But another question has to do with the size of the market that might be created through conversion, and it may not be all that big: By an NCA estimate, if all the now-planned conversions were actually carried out, it would increase domestic coal consumption by only about 20 million tons annually after 10 years.

● **BN: Unused capacity.** Burlington Northern is one road that is very much aware of what's happening on the domestic front.

In 1981, BN originated 112 million tons of coal, setting a new volume record for the 11th year in a row. Currently, BN is shipping coal to 42 electric utilities, to 53 destinations, on its own and in conjunction with other railroads and with several water carriers. It's hauling coal from 19 mines in the Powder River Basin alone.

But, BN has found its own transportation capabilities outstripping the increase in demand. As Senior Vice President-Coal and Taconite John H. Hertog told the annual PLM coal conference earlier this month, BN could have moved several million more tons of coal out of the Basin if the demand had been there. For most of '81, BN had about 4,000 coal cars stored, and several thousand shipper-owned cars were also idle.

For '82, BN does see some growth. Including shipments to six generating stations that started up in '81 and to four new or expanded plants scheduled to be operating this year, BN figures that it will show an originated-tonnage increase of about eight million tons.

Long-range, BN is looking for "steady growth" in coal demand, despite the recent blips in the growth curve. BN looks for most of the growth to come from western mines.

The National Coal Association's prediction is that mines east of the Mississippi River will produce 590 million tons this year, with western mines adding 290 million tons. Western mines produced 275 million tons last year, and BN's John Hertog cites Department of Energy forecasts indicating that western production will climb to 382 million tons in 1985 and to 840 million tons in 1995, for an average annual increase of about 6%, while eastern production over the same period is expected to rise by only about 3.5% annually.

Hertog also notes that a National Electric Reliability Council study indicates that electric-energy requirements for the territory served by BN will go up at a compounded annual rate of 4% between now and 1986, a growth rate higher than that projected for the nation as a whole.

BN has also begun to look seriously at the export market, especially the market for steam coal in such Pacific Rim countries as Japan, Taiwan and South Korea.

Illinois Central Gulf	3 mos.	236,743	21,149	257,892	259,317	47,708	45,578	1,958	73,529	71,772	7,001	261,620	252,733	101.44	97.46	21,837	2,411	(5,233)	19,818	2,402
	12 mos.	951,195	81,572	1,032,767	973,266	205,380	185,990	7,636	285,359	269,295	28,988	1,051,206	963,099	101.78	101.01	(5,931)	(29,179)	(16,370)	(5,921)	(27,227)
Kansas City Southern	3 mos.	74,292	3,713	78,005	73,861	15,532	15,209	761	19,676	16,154	5,207	71,772	66,964	92.00	90.70	6,524	6,378	5,974	6,232	5,838
	12 mos.	295,070	15,058	310,128	277,158	62,334	53,308	3,041	70,752	63,834	17,778	274,709	244,319	88.60	88.20	33,797	30,999	28,403	26,642	23,587
Long Island	3 mos.	4,093	100,789	104,882	96,052	21,870	19,852	826	25,122	21,209	1,662	109,004	95,340	103.93	99.25	(4,430)	503	(2,862)	(4,430)	503
	12 mos.	19,081	370,736	389,817	356,812	83,235	75,905	3,302	96,492	79,627	6,735	422,223	372,295	108.31	104.33	(33,394)	(16,451)	(27,978)	(33,394)***	(16,451)
Louisville & Nashville	3 mos.	318,333	5,903	324,236	279,040	56,529	46,431	2,166	73,598	62,009	10,757	293,057	257,484	90.40	92.30	63,564	14,398	11,769	41,673	19,270
	12 mos.	1,243,851	23,481	1,267,434	1,064,395	218,256	179,478	6,799	276,494	245,864	42,414	1,144,090	999,746	90.30	93.90	135,722	41,747	98,337	104,413	44,217
Missouri-Kansas-Texas	3 mos.	59,331	3,362	62,693	64,308	15,076	11,182	392	12,420	19,208	6,944	59,059	61,087	94.20	94.99	(778)	1,501	7,360	(3,872)	754
	12 mos.	253,510	14,741	268,251	220,917	54,126	36,528	1,124	67,540	65,239	9,633	248,748	210,521	92.72	95.29	7,769	3,596	26,694	7,675	3,351
Missouri Pacific	3 mos.	450,286	13,154	463,440	457,565	84,086	73,636	2,521	112,366	107,188	16,298	416,804	402,553	89.93	87.97	42,689	49,731	41,233	34,855	33,574
	12 mos.	1,834,704	52,956	1,887,660	1,630,496	314,331	253,395	9,875	428,461	385,588	62,759	1,660,169	1,479,904	87.94	87.54	206,906	179,725	178,502	148,323	123,308
Norfolk & Western	3 mos.	472,577	19,617	492,194	419,184	72,216	54,250	3,513	83,500	73,698	14,109	353,107	302,463	71.74	72.15	159,911	131,837	74,529	93,524	81,443
	12 mos.	1,719,259	67,648	1,785,907	1,559,534	291,967	245,073	13,892	292,266	284,902	55,382	1,341,925	1,214,913	75.13	77.90	502,967	382,817	239,256	291,062	232,416
Pittsburgh & Lake Erie	3 mos.	17,547	1,650	19,197	22,155	3,461	3,612	45	3,505	732	276	18,116	15,941	94.36	71.95	1,581	4,504	586	1,080	4,890
	12 mos.	76,929	5,712	82,641	83,536	13,986	13,436	147	11,822	6,070	1,020	72,647	64,150	87.90	76.79	27,010	8,076	3,168	21,795	7,368
St. Louis Southwestern	3 mos.	98,778	1,466	100,244	84,850	12,967	12,143	463	19,554	16,329	5,220	83,578	70,504	83.37	83.09	59,425	12,068	(1,623)	41,136	10,932
	12 mos.	382,858	6,017	388,875	303,859	62,561	48,407	1,990	72,116	53,870	23,638	335,578	266,356	86.29	87.65	90,024	30,901	24,274	61,001	24,933
Seaboard Coast Line	3 mos.	310,379	9,736	320,115	320,259	57,881	50,255	2,258	82,030	78,412	9,891	310,197	297,113	96.90	92.77	89,497	48,327	(35,917)	43,552	49,850
	12 mos.	1,279,673	39,387	1,319,063	1,220,131	235,129	195,874	9,061	316,609	287,047	38,821	1,234,917	1,111,386	93.62	91.08	249,201	182,220	32,812	197,425	175,369
Soo Line	3 mos.	83,429	1,599	85,028	83,702	16,427	17,543	402	15,031	15,258	2,020	70,309	68,349	82.70	81.70	15,407	15,429	–	10,980	10,041
	12 mos.	323,752	5,907	329,659	314,265	73,895	64,396	1,538	59,057	58,958	8,165	278,714	264,004	84.50	84.00	55,193	50,214	33,026	36,398	34,045
Southern	3 mos.	440,764	10,004	450,768	429,608	73,146	77,076	5,074	86,157	76,718	20,516	371,380	354,248	82.38	62.45	82,198	63,870	50,579	52,105	44,130
	12 mos.	1,751,074	39,595	1,790,669	1,637,712	282,003	282,032	18,622	333,839	294,805	80,068	1,451,200	1,345,526	81.04	82.15	330,876	263,896	226,002	212,080	180,918
Southern Pacific	3 mos.	531,739	16,458	548,197	531,585	74,571	71,952	4,720	148,735	128,783	21,685	548,900	506,013	100.12	95.10	35,215	41,455	14,013	21,905	60,669
	12 mos.	2,196,310	66,510	2,262,820	2,050,049	339,563	268,533	19,459	584,658	523,425	86,455	2,246,115	2,003,043	99.26	97.70	51,303	54,957	12,830	47,843	72,812
Union Pacific	3 mos.	495,049	7,092	502,141	534,434	77,345	87,645	3,114	102,867	105,021	24,433	441,246	464,083	87.87	86.83	51,807	58,585	17,136	37,980	40,666
	12 mos.	2,070,520	30,273	2,100,793	2,003,052	329,545	316,163	12,152	407,305	385,847	97,838	1,808,443	1,731,709	86.08	86.45	245,591	222,283	214,407	167,368	164,738
Western Maryland	3 mos.	26,165	666	26,831	24,173	4,646	5,768	196	2,429	4,714	1,580	18,057	24,089	87.29	99.65	9,728	(934)	4,217	5,166	307
	12 mos.	89,754	3,388	93,142	92,752	21,971	21,564	777	10,164	14,046	6,381	75,843	84,183	81.42	90.76	18,660	8,337	9,190	10,520	6,525
Western Pacific	3 mos.	44,099	637	44,736	48,828	6,391	6,602	103	9,124	10,770	1,813	44,859	46,705	100.27	95.65	3,394	3,402	(3,285)	231	2,876
	12 mos.	185,939	2,313	188,250	185,013	30,066	24,477	366	42,750	42,565	6,921	193,917	181,094	103.01	97.88	13,966	7,066	(10,380)	9,132	5,858

* Includes subsidies

** Includes real estate sales

*** Excludes approximately $70 million possible surcharge refund and related currently pending appeal.

ADVERTISING SALES

William J. Cavenagh, Director

New York, NY 10014
345 Hudson Street (212) 620-7200
W. Arthur Cubbage, Regional
Sales Mgr.

Chicago, IL 60602
29 E. Madison St. (312) 641-5815
Robert D. Bartley, Regional Mgr.
Glen A. Schlueter
Regional Sales Mgr.

Pittsburgh, PA 15237
1005 McKnight Park Dr., McKnight East
(412) 366-0702
Ronald M. Giallonardo

Atlanta, GA 30328
P.O. Box 28412
(404) 252-6510
Roger Kelton

Houston, TX 77079
Hawley-Lindenberger & Assoc.
11777 Katy Freeway Suite 155
(713) 870-0470
Robert Hawley
Gary Lindenberger

Dallas, TX 75225
P.O. Box 25045 Preston Station
(214) 361-6182
Joseph Sanders

Santa Monica, CA 90403
2665 30th St., Suite 102
(213) 450-9134
Fred Klaner, Jr.
Edward Klaner

Sausalito, CA 94965
3030 Bridgeway Building
(415) 332-6750
Chris Vogler

Kent, BR6 OHE, England
Priory Gate House
Church Hill Orpington
Kenneth J. Hendry
Tel: 0689 72632
Telex: 896228

D-6054 Rodgau 3, Germany
Siegfried D. Kamper
P.O. Box 300468
Nahestrasse 8
Telephone: (0) 6106 72968
Telex: 4189036

Paris 75016, France
Gerard Lasfargues
32 Rue Desbordes Valmore
Telephone: 504-9794

Milano 20146, Italy
M. Pecori Giraldi
Via G. Frua 8-Suite 1739
Telephone: (02) 46 35 18

1431 Buenos Aires, Argentina
M.F. Pipan & Associates
Andoneagui 2110-7°C
Phone (01) 52-5473
Telex: 122065 SHEAF AR

Tokyo, Japan
C.H. Yiu, Managing Director Sales
Kimuraya-Makina Bldg.
1-15-8 Shiba Minato-ku
Telephone: 453-7361
Cable: SUNGAINSHIA, TOKYO

Market

CARLOADINGS

Loadings of revenue freight in the week ended March 6 totaled 397,894 cars, according to the Association of American Railroads. This was a decrease of 59,345 cars, or 13.0%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended March 6 are estimated at 17.0 billion, a decrease of 11.8% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**Mar. 6 week**	**Feb. 27 week**	**Feb. 20 week**
Grain	27,934	29,663	27,757
Other farm products	4,603	5,379	4,611
Metallic ores	17,904	21,656	19,862
Coal	124,773	125,174	119,559
Crushed stone, gravel & sand	8,858	8,803	8,204
Nonmetallic minerals	10,859	9,520	11,453
Grain mill products	13,368	14,138	13,618
Food & kindred products	14,212	15,277	14,414
Primary forest products	16,983	18,039	16,489
Lumber & wood products (except furniture)	5,812	6,391	5,493
Pulp, paper & allied products	17,796	18,240	17,377
Chemicals & allied products	25,726	25,776	23,497
Petroleum products	4,562	4,905	5,112
Stone, clay & glass products	10,146	10,273	9,649
Coke	5,309	5,489	5,016
Metals & products	11,690	13,252	10,540
Motor vehicles & equipment	14,470	14,696	14,138
Waste & scrap materials	9,370	9,762	9,224
Forwarder & shipper assn. traffic	9,863	10,327	9,040
All other carloads	43,460	45,175	41,571
LCL traffic	196	208	175
Total Cars Loaded	**397,894**	**412,144**	**386,799**
Cumulative total	1982		1981
10 weeks	**3,654,470**		**4,255,628**
Estimated revenue ton-miles (billions), 10 weeks	**158.2**		**178.8**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Feb. 27 totaled 37,947 cars (8.1% above the corresponding 1981 week) and 64,781 trailers or containers (up 1.6% from 1981). Cumulative volume for the first nine weeks of 1982 is 297,742 (up 7.6% from 1981) and 529,669 trailers or containers (up 5.8% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Feb. 21 totaled 4.6 million tons (down 8.1% from 1981). Cars loaded totaled 66,275 (down 10.5% from 1981). Cumulative loadings for 1982 were up to 29.9 million tons (down 11.7 from 1981).

- *Illinois Central Gulf.*—Has budgeted $26.6 million for rebuilding 600 open-top hopper cars at its Centralia, Ill. shop. Work will start in third-quarter 1982 and be completed by year's end.

- *Massachusetts Bay Transportation Authority.*—Has selected the Portec Sidewinder Direct Fixation System for use in a slab track application, more than 3.4 miles long, in the Red Line extension tunnel connecting Harvard Square with the Alewife area in Cambridge. Installation is scheduled to begin in July.

- *Locomotive ownership and condition.*—Class I roads owned or leased 27,670 diesel-electric units on Jan. 1, a decrease of 552 units from Jan. 1, 1981, according to AAR yearly summary.

	Owned or Leased Jan. 1		**Stored Serviceable Jan. 1**		**Waiting Shops Jan. 1**	
	1982	**1981**	**1982**	**1981**	**1982**	**1981**
Diesel-electric (units)	27,670	28,222	3,765	1,637	1,901	1,694
Steam (locomotives)	1	1	1	1	–	–
Electric (units)	0	79	–	–	–	–
Total	**27,671***	**28,302****	**3,766**	**1,638**	**1,901**	**1,694**

* Includes 116 slug units

**Includes 77 slug units

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	January 1982	**January 1981**	**December 1981**
Built new by carbuilders	1,833	5,064	2,455
Built new in RR shops	162	272	256
Built new—total	1,995	5,336	2,711
Rebuilt	110	35	47
TOTAL DELIVERED	**2,105**	**5,371**	**2,758**
Locomotives (new and rebuilt)	14	29	101

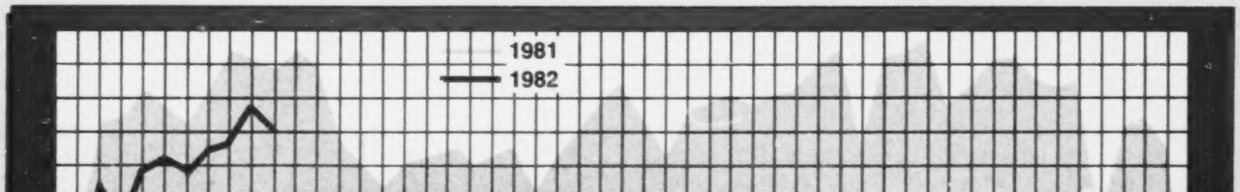
ORDERED

	January 1982	**January 1981**	**December 1981**
To be built new by carbuilders	835	2,147	1,811
To be built new in RR shops	0	0	0
To be built new—total	835	2,147	1,811
To be rebuilt	0	300	900
TOTAL ORDERED	**835**	**2,447**	**2,711**

ON ORDER AND UNDELIVERED

	February 1 1982	**February 1 1981**	**January 1 1982**
To be built new by carbuilders	13,231	44,219	14,819
To be built new in RR shops	1,504	4,232	1,666
To be built new—total	14,735	48,451	16,485
To be rebuilt	790	265	900
TOTAL ON ORDER	**15,525***	**48,716**	**17,385**
Locomotives (new and rebuilt)	234	524	214

*Due to revisions and cancellations of some orders, the Feb. 1, 1982, backlog has been reduced by 590 cars.



RAIL FREIGHT TRAFFIC TRENDS
BILLION TON MILES (Estimated)

Source: Association of American Railroads

Week ended Mar. 6, 1982
17.0 BILLION

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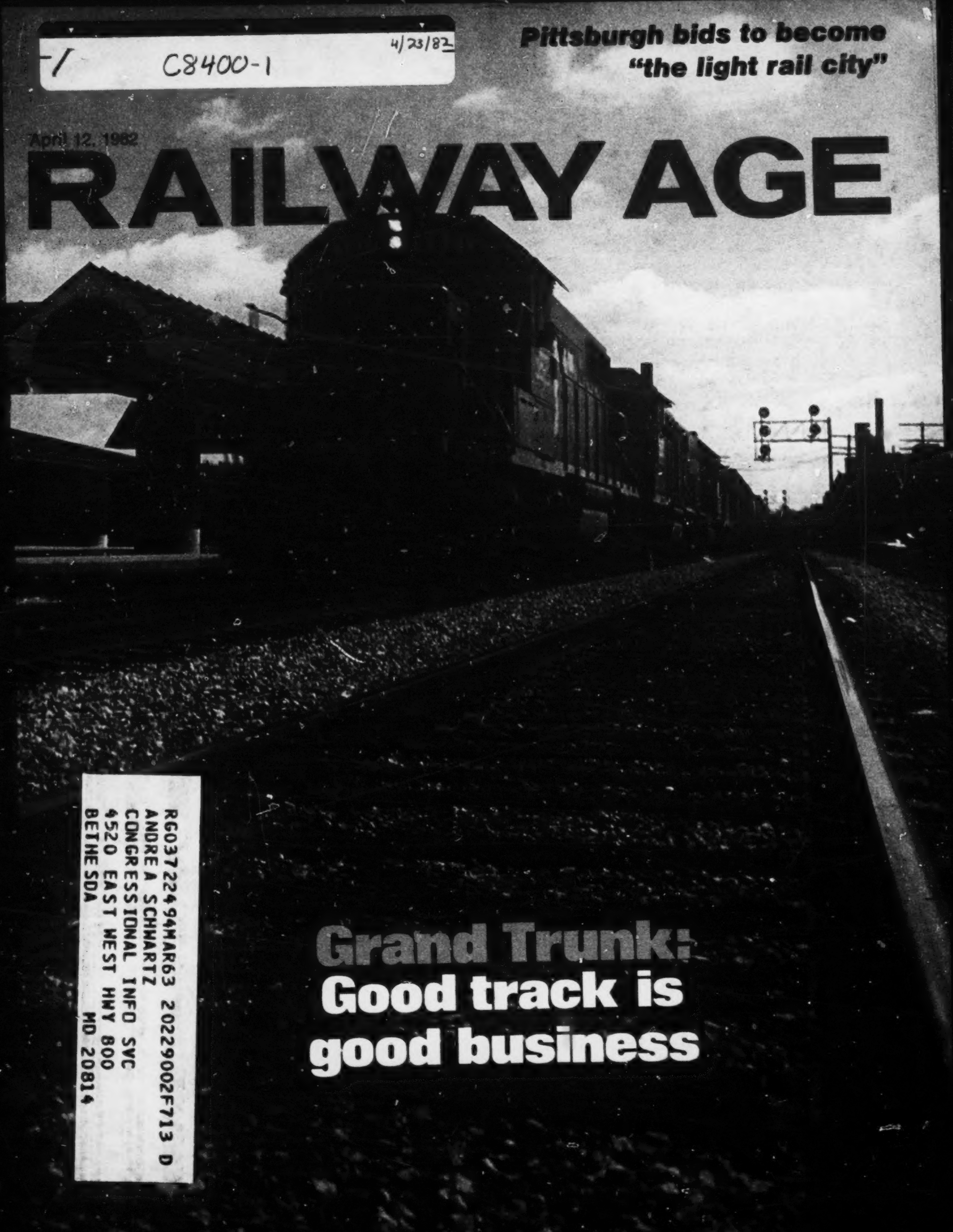
Pittsburgh bids to become
"the light rail city"

April 12, 1982

RAILWAY AGE



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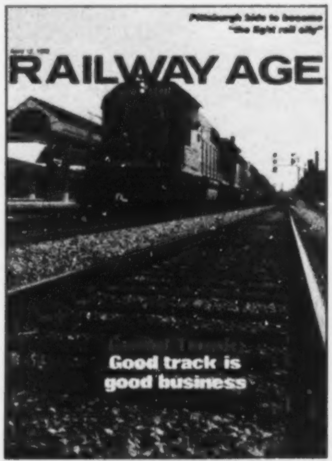
ANDREA A SCHWARTZ
CONGRESSIONAL INFO SVC
4520 EAST WEST HWY 800
BETHESDA MD 20814

Grand Trunk:
Good track is good business

RAILWAY AGE

April 12, 1982

FEATURES


Pittsburgh bids to become "the light rail city"
RAILWAY AGE
Good track is good business

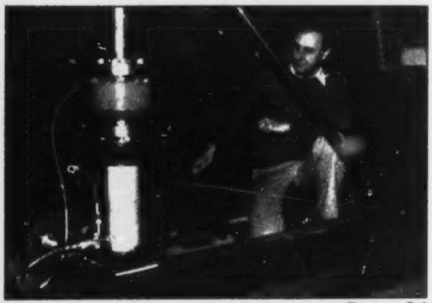
Cover article, page 15

15 **Grand Trunk: Good track is good business**
Even in bad times, Grand Trunk maintains a substantial track program—and thus avoids having to play a costly game of catch-up when business improves.

21 **At Oak Brook, there's no recession in R&D**
Portec firmly believes in a railroad renaissance, and is investing heavily to increase its participation in the railcar and track maintenance markets.

30 **Pittsburgh: The light rail city**
The Port Authority of Allegheny County hopes to parlay its own relatively small order for LRVs (55) into a major carbuilding industry for Pittsburgh.

36 **KCS and the black box: A success story**
Fuel savings in the 5-9% range have been indicated in 60,000 miles of tests. Microprocessor logic has made the device easier for engineers to handle.



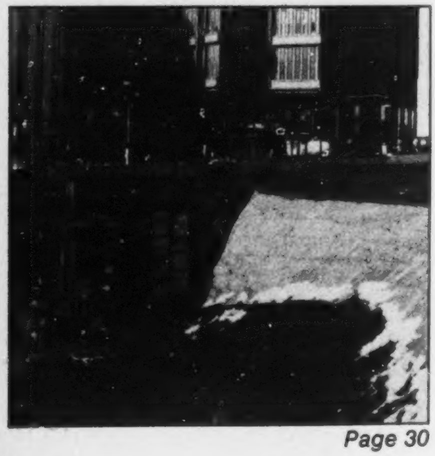
Page 21

NEWS

4 **Short and Significant**
8 **Bullet trains: California, here they come**
9 **ICC: One arrival, 130 departures**
9 **Thrall acquires W&K product lines**
12 **NW, Southern: All set for a big June wedding**
48 **The Railway Market**

COMMENT

3 **Inside**
9 **Watching Washington**
12 **Lines on Labor**



Page 30

DEPARTMENTS

42 **People in the News**
42 **Transit**
42 **Associations**
43 **Suppliers**
44 **100 Years Ago**
45 **Letters**
46 **Advertising Sales**
48 **Carloadings**
49 **Professional Cards**
50 **Classified Advertising**
51 **Guide to Advertisers**
52 **Products Report**

COVER: Photo was shot at Battle Creek, Mich., by Arthur J. Fettig, company relations officer for the Grand Trunk.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Mar. 20 totaled 390,317 cars, according to the Association of American Railroads. This was a decrease of 71,996 cars, or 15.6%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Mar. 20 are estimated at 16.7 billion, a decrease of 14.5% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	Mar. 20 week	Mar. 13 week
Grain	25,740	26,696
Other farm products	3,602	3,781
Metallic ores	20,288	16,592
Coal	120,914	121,355
Crushed stone, gravel & sand	9,677	9,342
Nonmetallic minerals	12,170	11,540
Grain mill products	12,871	12,672
Food & kindred products	14,050	14,125
Primary forest products	16,997	17,027
Lumber & wood products (except furniture)	6,065	5,618
Pulp, paper & allied products	17,244	17,005
Chemicals & allied products	23,514	24,202
Petroleum products	4,460	4,605
Stone, clay & glass products	10,029	10,551
Coke	5,085	5,339
Metals & products	11,075	10,987
Motor vehicles & equipment	15,816	15,635
Waste & scrap materials	9,291	9,528
Forwarder & shipper assn. traffic	9,145	9,507
All other carloads	42,078	44,188
LCL traffic	206	190
Total Cars Loaded	**390,317**	**390,485**
Cumulative total	1982	1981
12 weeks	**4,434,824**	**5,165,076**
Estimated revenue ton-miles		
(billions), 12 weeks	**191.6**	**217.4**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Mar. 13 totaled 37,455 cars (8.9% above the corresponding 1981 week) and 63,498 trailers or containers (up 2.0% from 1981). Cumulative volume for the first eleven weeks of 1982 is 372,433 (up 7.9% from 1981) and 656,288 trailers or containers (up 5.1% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Mar. 7 totaled 4.6 million tons (down 8.8% from 1981). Cars loaded totaled 64,782 (down 11.6% from 1981). Cumulative loadings for 1982 were 39.1 million tons (down 12.1% from 1981).

- *CP Rail.*—Plans to install an additional 38 hotbox detectors—19 this year, eight in 1983, and 11 in 1984. CP Rail currently has 110 detectors in operation.

- *New York City Transit Authority.*—Awarded a $12.5-million, 30-month contract, with option to renew, to Daniel, Mann, Johnson & Mendenhall (DMJM) to assist in implementation of a five-year revitalization plan. DMJM's responsibilities include industrial surveys of NYCTA's two major car repair shops and 13 inspection barns and equipment, evaluation of the Car Maintenance Department's facility requirements, development and implementation of a barn and shop modernization program, and initiation of modern industrial methods to improve performance and efficiency. DMJM will be assisted by London Transport International, Corddry Carpenter Dietz and Zack, LeRoy Callender, and Clarence Generette and Co.

- *San Francisco Public Utilities Commission.*—Approved award of a contract to Kaiser Engineers in joint venture with Daniel, Mann, Johnson & Mendenhall to perform engineering design services for a $7-million rehabilitation and modernization of the San Francisco Municipal Railway's Geneva Street carbarn.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	February 1982	February 1981	January 1982	Two Months 1982	Two Months 1981
Built new by carbuilders	1,526	4,401	1,833	3,359	9,465
Built new in RR shops	236	308	162	398	580
Built new—total	1,762	4,709	1,995	3,757	10,045
Rebuilt	124	150	110	234	185
TOTAL DELIVERED	**1,886**	**4,859**	**2,105**	**3,991**	**10,230**
Locomotives (new and rebuilt)	80	67	14	94	96

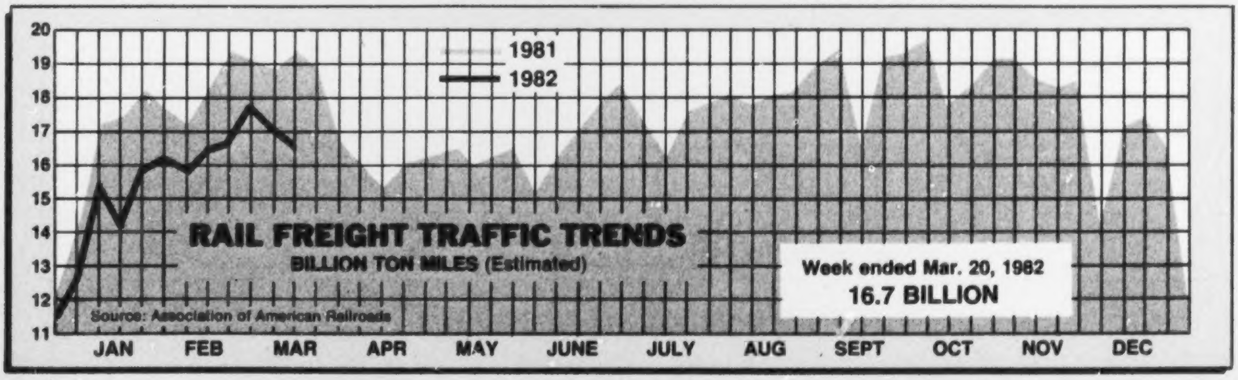
ORDERED

	February 1982	February 1981	January 1982	Two Months 1982	Two Months 1981
To be built new by carbuilders	753	2,069	815	1,568	4,216
To be built new in RR shops	0	0	0	-	0
To be built new—total	753	2,069	815	1,568	4,216
To be rebuilt	0	0	0	0	300
TOTAL ORDERED	**753**	**2,069**	**815**	**1,568**	**4,516**

ON ORDER AND UNDELIVERED

	March 1 1982	March 1 1981	February 1 1982	Average backlog 1982	Average backlog 1981
To be built new by carbuilders	12,218	41,197	13,231	12,724	42,708
To be built new RR shops	1,268	3,924	1,504	1,386	4,078
To be built new—total	13,486	45,121	14,735	14,110	46,786
To be rebuilt	666	115	790	728	190
TOTAL ON ORDER	**14,152***	**45,236**	**15,525**	**14,838**	**46,976**
Locomotives (new and rebuilt)	219	471	234	227	498

*Due to revisions and cancellations of some orders, the March 1, 1982, backlog has been reduced by 240 cars.



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5/3/82

NW's Roanoke Shops: 85 years, 71,000 cars

pril 26, 1982

RAILWAY AGE

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ANDREA SCHWARTZ
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BETHESDA MD 20814

Intermodal technology: The competition heats up

RAILWAY AGE

April 26, 1982

FEATURES

NW's Roanoke Shops: 85 years, 71,000 cars
RAILWAY AGE
Intermodal technology: The competition heats up

Cover: Itel Impack car, built by FMC, in test service on BN at Portland, Ore. *Page 15*

Intermodal technology

15 **The competition heats up**
Manufacturers who see TOFC/COFC as the wave of the future have come up with 17 different equipment concepts—and they're still busy at the drawing boards.

17 **What, why, how—and by whom**
A company-by-company rundown, ranging from the well-tested Ten-Pack to such new concepts as Rail or Trail, which has 16 highway wheels and 8 rail wheels.

26 **From shippers, some probing questions**
How strong, they're asking, is the railroad commitment to piggyback? When will it be adopted as "a full-fledged member of the rail service family"?

29 **NW's Roanoke Shops: 85 years, 71,000 cars**
NW builds rigidly standardized cars to its own specs, thus keeping costs low—and therefore isn't anxious to solicit business from other railroads.

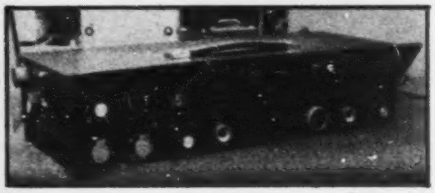
38 **Locotrol helps NdeM subdue the Sierra Madre**
The device permits a single engineer, commanding seven locomotives in two sets, to handle heavier trains—faster—over rugged mountainous terrain.

40 **Railview: Transit-car procurement**
Cyclical buying, warns Intransco President Lawrence P. Colman, forecloses the economies made possible by steady, year-to-year procurements.

Page 29

NEWS

4 **Short and Significant**
8 **UMTA gets tougher on new rail starts**
8 **Keeping up to date on track research**
10 **R&D: AAR moves to fill the gap**
10 **Justice clears BN in Milwaukee case**
12 **NTSB balks at new safety rules**
52 **The Railroad Market**



Page 38

COMMENT

3 **Inside**
10 **Watching Washington**
12 **Lines on Labor**

DEPARTMENTS

44 **100 Years Ago**
47 **People in the News**
47 **Associations**
47 **Suppliers**
50 **Advertising Sales**
51 **Letters**
52 **Carloadings**
53 **Classified Advertising**
54 **Guide to Advertisers**
54 **Professional Cards**
55 **Products Report**
56 **New Literature**

Market

CARLOADINGS

Loadings of revenue freight in the week ended April 3 totaled 385,702 cars, according to the Association of American Railroads. This was a decrease of 10,157 cars, or 2.6%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended April 3 are estimated at 16.7 billion, a decrease of 3.6% below the corresponding week of 1981.

Commodity	Apr. 3 week	Mar. 27 week
Grain	27,717	26,882
Other farm products	3,307	3,584
Metallic ores	20,700	19,873
Coal	114,327	122,966
Crushed stone, gravel & sand	9,517	9,431
Nonmetallic minerals	10,436	10,753
Grain mill products	12,558	12,584
Food & kindred products	13,908	14,355
Primary forest products	15,505	15,839
Lumber & wood products (except furniture)	6,393	6,375
Pulp, paper & allied products	17,590	17,809
Chemicals & allied products	24,258	24,260
Petroleum products	4,731	4,652
Stone, clay & glass products	10,623	10,532
Coke	5,360	5,296
Metals & products	12,033	11,733
Motor vehicles & equipment	15,611	15,249
Waste & scrap materials	8,586	8,789
Forwarder & shipper assn. traffic	9,776	9,506
All other carloads	42,558	43,083
LCL traffic	208	204
Total Cars Loaded	**385,702**	**393,755**
Cumulative total,	1982	1981
14 weeks	**5,214,261**	**6,013,912**
Estimated revenue ton-miles		
(billions), 14 weeks	**225.1**	**253.9**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Mar. 27 totaled 37,084 cars (10.0% above corresponding 1981 week) and 60,328 trailers or containers (down 1.6% from 1981). Cumulative volume for the first 13 weeks of 1982 is 446,090 (up 8.0% from 1981) and 785,467 trailers or containers (up 5.0% from 1981).

- *Conrail.*—Applied to the FRA for authority to install remote control interlocking at Ashtabula, Ohio, to replace a mechanical interlocking destroyed by fire last December.

- *CP RAIL.*—Will invest $66.2 million in capital improvements in Ontario this year. The program calls for installation of 17 hotbox detectors; laying of 65 miles of new rail; rebuilding of 27 bridges and culverts; and installation of 458,000 new crossties.

- *Missouri Pacific.*—Applied to the FRA for approval to install a traffic control system between Whitesboro, Tex., and Fort Worth, 71 miles. Project will involve removal of 83 automatic block signals and installation of: 35 controlled signals and 25 automatic block signals; 11 control points, 11 power-operated switches and 13 electric switch locks; and a traffic control machine at Spring, Tex.

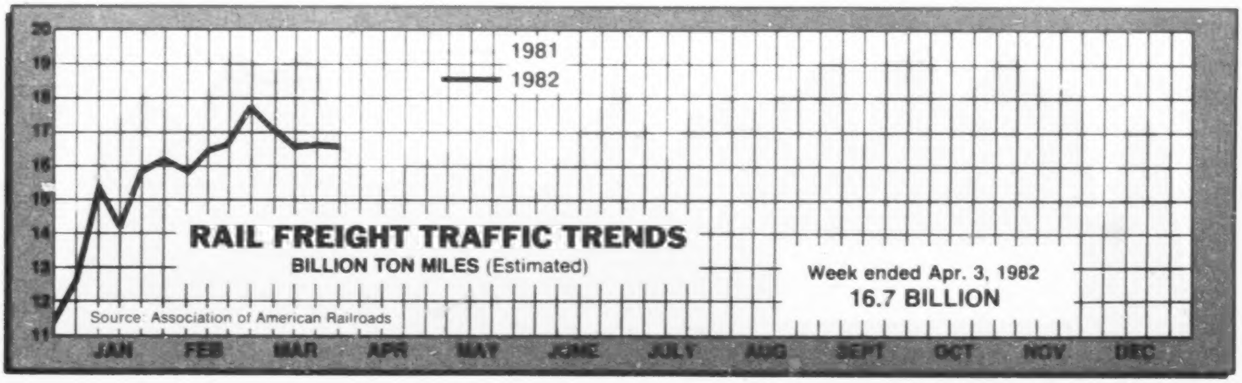
- *United States Agency for International Development.*—Is funding a feasibility study for a railway tunnel crossing of the Bosphorus at Istanbul, Turkey. The Turkish Ministry of Public Works has retained De Leuw, Cather International Limited, in joint venture with Sverdrup & Parcel and Associates and Botek of Turkey, to conduct the study, which will investigate the engineering, economic and financial feasibility of a railway link between Europe and Asia at Istanbul.

ESTIMATED OWNERSHIP—ALL REVENUE FREIGHT CARS

March 1, 1982 vs. March 1, 1981

		Box	Covered Hopper	Gondola	Hopper	Flat	Refg.	All Others	TOTAL
Class I	1982	310,952	173,575	142,245	303,799	90,535	58,476	25,212	1,104,793
	1981	343,299	173,436	149,187	313,335	94,819	62,109	26,617	1,162,802
Class II & S&T Cos.•	1982	54,248	8,794	10,784	13,078	4,709	3,552	3,281	98,446
	1981	57,176	8,226	11,268	13,957	5,325	3,516	3,280	102,748
Railbox-Railgon	1982	24,995		3,999					28,994
	1981	24,665		2,268					26,933
RRO&C•• Refgs.	1982						3,271		3,271
	1981						3,428		3,428
Private	1982	733	128,370	26,428	20,751	52,512	6,929	190,984	426,707
	1981	1,394	122,660	22,745	20,822	52,171	9,149	186,671	415,612
GRAND TOTAL	1982	390,928	310,738	183,456	337,628	147,756	72,228	219,477	1,662,211
	1981	426,534	304,322	184,468	348,114	152,315	78,202	216,568	1,711,523

• Class II railroads and switching and terminal companies.
•• Railroad owned and controlled refrigerator car lines.



National Castings: Gearing
for the long hau

May 10, 1982

RAILWAY AGE

-/ C8400-1 5/18/82

Amtrak girds for a new budget battle

037224941MAR63 2022900 2F713 E
ANDREA SCHWARTZ
CONGRESSIONAL INFO SVC
4520 EAST WEST HWY 800
BETHESDA MD 20814

ast Corridor track pro
Nearing completion —

RAILWAY AGE

May 10, 1982

FEATURES

RAILWAY AGE

Cover: Concrete ties in the Northeast Corridor, photographed by Roy Blanchard. *Page 15.*

15 Amtrak and DOT: A gentlemen's disagreement
Another budget battle is shaping up—but, in contrast to last year's melee, the two sides are giving Congress their well-thought-out positions early on.

18 Does the bullet train have a U.S. future?
A private company's plan to put Japanese trains into service in California—and maybe Florida and Texas—may not be as far-out as some people think.

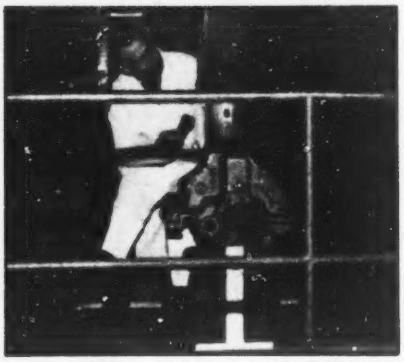
22 CTA cars: No frills, no nonsense
Budd is supplying Chicago with new transit cars. Like those that have preceded them, they are evolutionary, not revolutionary, in concept.

26 South Shore: "A good, basic car"
They're made (mostly)in Japan—but CSS&SB's new commuter cars, now in the prototype testing stage, are unexotic, utilizing proven technology.

28 National Castings: Gearing up for the future
A continuing R&D commitment, in good times and bad, is a hallmark of a company that has been helping make freight cars more reliable for more than a century.

36 BAR puts its track on tape
The railroad has videotaped its entire 494-mile main line—and officers can "inspect" any section by pulling out the proper cassette and playing it.

Page 22



Page 28

NEWS

4 **Short and Significant**
8 **ICC okays Mellon takeover of B&M**
8 **South Dakota buys a rail line**
10 **CSX to buy 50 EMD locomotives**
10 **SP gets ready for an upturn**
12 **Southern wins top safety award**
41 **The Railroad Market**

COMMENT

3 **Inside**
10 **Watching Washington**
11 **Lines on Labor**

DEPARTMENTS

38 **100 Years Ago**
38 **Advertising Sales**
39 **People in the News**
39 **Suppliers**
39 **Transit**
40 **Professional Cards**
41 **Carloadings**
42 **Classified Advertising**
43 **Guide to Advertisers**
44 **Products Report**
44 **New Literature**

Amtrak and DOT: A gentlemen's disagreement

The railroad and the government are $188 million apart on budget estimates for FY 83—but the guerrilla tactics of last year are giving way to more orderly lines of battle.

By BILL FAHRENWALD,
Associate Editor

An odd sight greeted Rep. Adam Benjamin (D-Ind.) as he convened hearings on Amtrak before his House Appropriations subcommittee on transportation. Sitting together at the witness table were Amtrak President Alan S. Boyd and Federal Railroad Administrator Robert W. Blanchette. And both were smiling.

It wasn't because they agreed on what Amtrak's budget ought to be in FY 83. That would have meant Benjamin was in a dream. But almost as remarkable, Boyd and Blanchette had agreed to disagree on specific points; and they brought to Benjamin a cohesive if sometimes strained presentation. The accompanying table sums up their differences—the bottom line of which is that FRA is requesting a $600-million budget for Amtrak in FY 83 while Boyd has asked for the figure that was authorized in last year's budget bill, $788 million.

Where DOT and Amtrak part company on the FY 83 budget

(all figures in millions)

	Amtrak	DOT
Assumed Operating Costs	$1,390	$1,390
Impact of NEC Cost Allocation by ICC	20	20
	$1,410	$1,410
Potential Savings		
Productivity and labor improvements	70	70
Work Rule change	0	15*
403 (b) state funded service	0	25*
Sunset commuter services	0	10*
Discontinuance of Cardinal service	0	5*
Carryover of 1982 operating savings	0	15**
	70	140
Operating Costs (net after savings)	$1,340	$1,270
Operating Revenues	690	690
Revenue Shortfall	$650	$580
Federal funding Requests		
Operating budget	$650	$580
Capital budget	134	16
Labor protection	4	4
Totals	$788	$600

*Amtrak disagrees with DOT that changes resulting in these savings are likely to be made, but agrees that the DOT figures would be correct if the changes were made.

**Amtrak wants to apply the 1982 carryover to its 1983 capital—not operating—budget.

The simple fact that such a table can be produced stands in vivid contrast to the situation just one year ago. Then, FRA and Amtrak were firing salvos of different figures almost weekly with neither party aware of what the other would do next. Benjamin inquired of the two witnesses why the acrimony had been abandoned, at the same time congratulating them for the feat. Boyd replied, "I guess he [Blanchette] has learned a lot in a year."

Amtrak, FRA, and Congressional sources privately express the opinion that the Administration is not happy with how last year's politically damaging Amtrak battle turned out. Over 90% of Amtrak's route miles survived the relatively modest budget cut won by the Administration.

A Congressional budget analyst recently noted that in coming up with an initial federal budget, figures are generally rounded to "the nearest hundred million dollars." Since Amtrak only consumed about $735 million in federal funds last year it is clearly not a major item in the budget. In fact, it accounts for about one tenth of one percent of all federal spending.

- **"A permanent American institution."** Boyd acknowledges these facts and says that with a year's experience the Administration has "learned that [Amtrak's continuation] was in the national interest."

As a result, Boyd says, "It's my conclusion that Amtrak stabilized last year and has become a permanent American institution. What I expect to see is a continuing growth and expansion of service with some additional routes being added. Primarily, though, there will be an expansion of what I would call corridor type operations with some filling in of where we have tri-weekly service."

There are several issues to be resolved, though, before Amtrak can look comfortably to a long and healthy future. First, says Boyd, "Some form of financing must become available to support the infrastructure that is not totally subject to the vicissitudes of annual appropriations." He is not certain what form that financing could or should take, but he thinks it is critical to remove Amtrak's capital needs from annual political frays.

This year's budget debate is a typical example, with Amtrak's capital budget taking the brunt of the Administration's proposed cuts. Blanchette acknowledges the need for capital improvements within Amtrak, but he maintains that in a time of tight federal money Amtrak can afford to put off some of its plans.

Such a strategy makes Boyd and other Amtrak officials nervous. Internally, Amtrak identified nearly $250 million worth of capital improvements it would like to undertake in FY 1982. To meet the level of its authorization, it whittled that figure down to a request for $134 million. That budget would cover the purchase of 70 new Amfleet II type sleepers and food service cars, $5 million worth of locomotives to replace the aging FL9s, $50 million for right of way improvements, and $39 million for station projects.

Blanchette proposed giving Amtrak only $16 million for capital projects in FY 83. This would allow the company to meet its environmental protection obligations and to make necessary accommodations for handicapped passengers, but not much else. Boyd calls this a "short term savings at long term costs." But he thinks that Congress has made a long term commitment to Amtrak and will not allow a deferral of critical capital needs.

- **The road to self-sufficiency.** As part of

Boyd's long term plan for Amtrak, he has promised to make the company self sufficient in covering its operating costs. By 1985 he intends to make up these costs entirely out of the company's revenues. In FY 81, ridership declined 2.9%, mostly due to a big decrease in ridership along the Northeast Corridor (down 9.8%). Boyd attributes that loss mainly to cut rate air fares introduced by New York Air and poor on-time performance due to track work. Increased reliability has slowed the loss of NEC riders and Boyd is looking for a 2% gain in system-wide ridership in FY 82. He expects that various efficiencies and economies Amtrak can introduce will enable it to cover its short term costs by 1985, with one proviso.

"That relates to our own ability to maintain a reasonable capital program," says Boyd. He warns that the severe cutback in capital spending requested by DOT could increase Amtrak costs and make it impossible for the corporation to cover its out of pocket costs.

Boyd's long range goal is to be able to cover Amtrak's capital costs through a revenue diversification program. The centerpiece of that effort is the commercial development of high speed intercity corridors, but he and Lawrence Gilson, vice president, corporate development, are working on a number of other fronts, too.

Boyd ranks increasing the use of Amtrak's heavy overhaul shops at Beech Grove, Ind., as the first priority in this program. Discussions were started last year with a number of transit authorities that might be able to use the facilities for conversions and overhauls of their rail equipment. So far, no deals have been struck outside of one small order that is now being completed for New York MTA. Boyd notes, "The commuter and transit agencies have some of the same financial problems as most other people." If Amtrak's capital budget is cut back next year, Beech Grove could be in trouble.

• **The fiber optics option.** In other areas, Amtrak is seeking to develop a fiber optics communications network along NEC right of way. Gilson says he is now talking to several companies, though it is too early to tell what form any joint use might take. He hopes that construction contracts will be let in a few months.

Plans to develop commercial property at Amtrak's 30th St. Philadelphia station were apparently stymied when the newly installed Amtrak board of directors changed some of the basic rules for the development. But Gilson says, "We are pursuing it."

If enough of Amtrak's assets can be developed, Boyd and Gilson feel that the railroad will some day be able to cover its capital costs. For the time being, though, their attention is focused on the FY 83 budget, where capital costs are not the only consideration.

The other important points of dispute between Amtrak and DOT are savings that could be made to reduce Amtrak's operating costs by $70 million. Work rule changes, 100% funding by states of the 403(b) trains, full local support for the so-called sunset commuter trains, elimination of the Cardinal's deficit, and a carryover of unused 1982 operating subsidies would comprise the savings.

While there is no dispute that DOT's figures are accurate, Amtrak does question the policies behind them. Moreover, Boyd expects that the DOT cuts would result in the discontinuance of a number of state supported trains, sunset trains, and the Cardinal. But Blanchette vigorously denies that train-offs are the purpose of his proposal.

"We do not remove anything [with the budget]," he says. "We only say that the feds won't fund it. There is no dispute on the level of service [to be provided]. There is a different level of assumptions on what could happen."

These differences, then, will shape this year's congressional debate over Amtrak. A schedule is uncertain at this time, but it seems possible that Amtrak, along with others sweating out the federal budget, will see the end of the fiscal year come and go at the end of September with no solution.

• **The bets are on Amtrak.** No one can predict whether Amtrak will eventually survive the year intact, but the best informed guesses are placing Amtrak's FY 83 appropriation closer to its request for $788 million than to the Administration's $600 million. Some expect the figure to come out around Amtrak's FY 82 appropriation of $735 million. One imponderable that will affect the final budget is whether Congress decides to lift the prohibition it put on Amtrak last year against payment of local and state taxes. Boyd is concerned that such a move could subject Amtrak to liabilities and fines of up to $25 million—an amount roughly equal to the costs of operating one of the long distance western trains or five times the subsidy given the Cardinal each year. ■

NEC track program nears completion

At the heart of Amtrak's system, the Northeast Corridor, last year was not a good one. Ridership was down in FY 81 by 9.8% and on time performance was disappointing. Between New York and Washington, for instance, trains ran on-time only about 63% of the time. But by September, when Northeast Corridor Improvement Project (NECIP) work began to slacken, that figure climbed to nearly 76%. Later, express Metroliners were inaugurated and their on time performance has been excellent. Signs for the future of NEC are looking better.

Amtrak officials expect that NECIP work this summer will not cause major disruptions in schedules. This will be the last year of major track work under NECIP, so schedules should be faster and more reliable in the future. NEC maximum speed is 110 mph, but Amtrak would like the Federal Railroad Administration to increase that limit to 120 mph. No one is certain when that might happen, though.

The major work remaining to be done is final installation of a total of 420 miles of concrete ties, trackwork in the tunnels just south of Baltimore, and construction of new maintenance facilities along the corridor. Track and tunnel work will be largely complete at the end of this work season, but construction of some maintenance bases has not yet even started.

While NEC operation may finally see the day of service undisrupted by large construction gangs, it still faces labor and commuter problems that could affect its future. As part of last year's Northeast Rail Service Act, Conrail was relieved of its responsibility to provide operating crews and commuter service within the corridor at the end of the year. Amtrak must negotiate with train and engine crews to assume their employment by that date and a separate entity, now called Commuter Services Corp., is in place to take over commuter operation if requested to do so by the various local authorities.

Major work completed to date

- 338 miles of concrete ties
- 711,000 wood ties
- 466 miles of welded rail
- 483 miles of surfacing
- 610 track panels installed in North River Tunnel

1982 track program

- 73.5 miles of concrete ties
- 21,995 wood ties
- 10.6 miles of welded rail
- 68.1 miles of undercutting
- 96.2 miles of surfacing

Clark Tyler, group vice president, passenger services and communications, Amtrak, stresses that Amtrak will pay particular attention to the T&E negotiations for NEC. Knowing that it could set the stage for the assumption of T&E crews nationwide he says, "We hope to get a cookie cutter.".

But certain aspects of the law are confusing and could leave Amtrak in a difficult position with its crews (*RA*, April 12, p. 9). Crews are to be allowed "flowback" rights under which they would be free to move between Conrail and Amtrak every six months. But crews that go to work for CS would only be allowed to move once, back to Conrail. Tyler fears that this will result in a "two way Sadie Hawkins day, which could lead to disruptions."

Tyler hopes that Congress will act to straighten out what he thinks could become a serious problem. As to the concerns over the formation of CS, Amtrak President Alan Boyd says, "I certainly don't think anything's going to fall apart there. Commuter Services is doing a good job of identifying the issues and grappling with them." Boyd shares Tyler's concern over flowbacks, though. "So much hinges on labor," he says. "If they [CS] don't deal with labor, that could create problems."

Market

CARLOADINGS

Loadings of revenue freight in the week ended Apr. 17 totaled 375,229 cars, according to the Association of American Railroads. This was an increase of 8,626 cars, or 2.4%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Apr. 17 are estimated at 16.2 billion, an increase of 1.2% above the corresponding week of 1981. The 1981 week included the Good Friday holiday and the third week of the coal miners' strike.

REVENUE FREIGHT CARLOADINGS

Commodity	Apr. 17 week	Apr. 10 week
Grain	24,567	24,943
Other farm products	3,150	2,805
Metallic ores	20,415	19,344
Coal	118,916	113,570
Crushed stone, gravel & sand	9,181	8,931
Nonmetallic minerals	11,059	9,072
Grain mill products	10,989	11,020
Food & kindred products	12,781	11,887
Primary forest products	16,157	14,655
Lumber & wood products (except furniture)	5,965	5,629
Pulp, paper & allied products	16,335	15,665
Chemicals & allied products	23,427	21,491
Petroleum products	4,912	4,314
Stone, clay & glass products	10,160	9,253
Coke	5,199	5,145
Metals & products	10,456	9,353
Motor vehicles & equipment	14,857	13,006
Waste & scrap materials	8,925	7,631
Forwarder & shipper assn. traffic	8,240	8,074
All other carloads	39,359	37,782
LCL traffic	179	198
Total Cars Loaded	**375,229**	**353,768**
Cumulative total,	1982	1981
16 weeks	**5,943,253**	**6,759,554**
Estimated revenue ton-miles (billions), 16 weeks	**256.6**	**286.3**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Apr. 10, which included the Good Friday holiday, totaled 32,936 cars (0.7% below corresponding 1981 week) and 60,818 trailers or containers (up 0.6% from 1981). Cumulative volume for the first 15 weeks of 1982 is 517,179 (up 7.8% from 1981) and 909,804 trailers or containers (up 4.6% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Mar. 21 totaled 4.8 million tons (down 2.9% from 1981). Cars loaded totaled 67,875 (down 6.8% from 1981). Cumulative loadings for 1982 were 48.7 million tons (down 10.4% from 1981).

- *New York City Transit Authority.*—Is seeking bids on the supply of newly-designed car door mechanisms to replace existing unreliable and/or defective mechanisms on 897 R-27, R-28 and R-30 subway cars. The design is being done by NYCTA engineers.

- *New York Metropolitan Transportation Authority.*—Has agreed to exercise an option to purchase up to 186 additional commuter cars from the Budd Co.—provided there is no change in the leverage leasing provision of the Economic Recovery Act of 1981. If the benefits of this provision are denied MTA, the authority may cancel the order up to Aug. 1 upon payment of a cancellation fee. Budd already has an MTA order for 130 commuter cars.

- *VIA Rail Canada.*—Will purchase an additional 10 LRC trainsets from Bombardier for 1983 delivery, at a cost of approximately $100 million. This is in addition to an earlier order for 10 trainsets, each consisting of a locomotive and five cars, all of which are to be in service this summer in the Quebec City-Windsor corridor. The trains just ordered will be used in the Maritimes and in the West.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	March		February	Three months	
	1982	1981	1982	1982	1981
Built new by carbuilders	2,032	4,718	1,526	5,391	14,183
Build new in RR shops	215	444	236	613	1,024
Built new—total	2,247	5,162	1,762	6,004	15,207
Rebuilt	148	136	124	382	321
TOTAL DELIVERED	**2,395**	**5,298**	**1,886**	**6,386**	**15,528**
Locomotives (new and rebuilt)	34	92	80	128	188

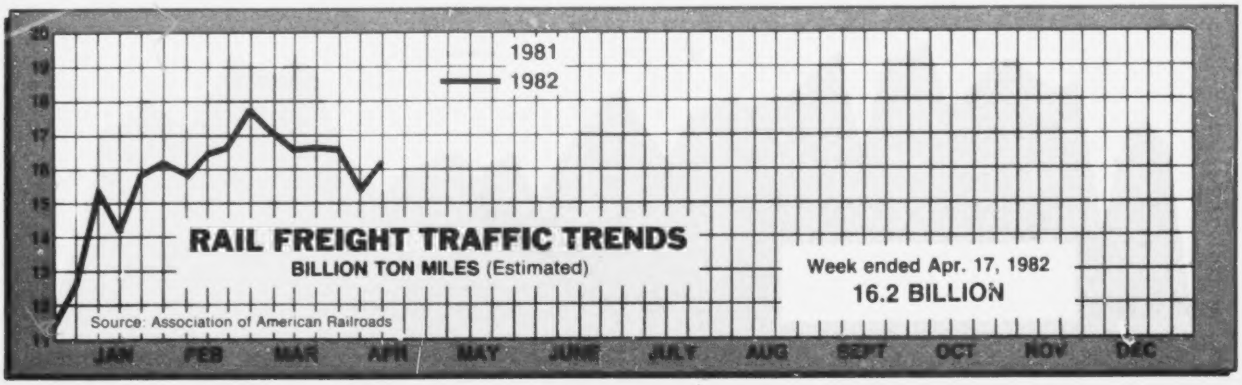
ORDERED

	March		February	Three months	
	1982	1981	1982	1982	1981
To be built new by carbuilders	1,485	1,559	753	3,053	5,865
To be built new in RR shops	0	0	0	0	0
To be built new—total	1,485	1,559	753	3,053	5,865
To be rebuilt	0	300	0	0	600
TOTAL ORDERED	**1,485**	**1,859**	**753**	**3,053**	**6,465**

ON ORDER AND UNDELIVERED

	April 1		March 1	Average Backlog	
	1982	1981	1982	1982	1981
To be built new by carbuilders	11,546	38,059	12,218	12,332	41,158
To be built new in RR shops	1,053	3,480	1,268	1,275	3,879
To be built new—total	12,599	41,539	13,486	13,607	45,037
To be rebuilt	518	279	666	658	220
TOTAL ON ORDER	**13,117***	**41,818**	**14,152**	**14,265**	**45,257**
Locomotives (new and rebuilt)	185	411	219	212	468

*Due to revisions and cancellations of some orders, the April 1, 1982 backlog has been reduced by 125 cars.



RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

Source: Association of American Railroads

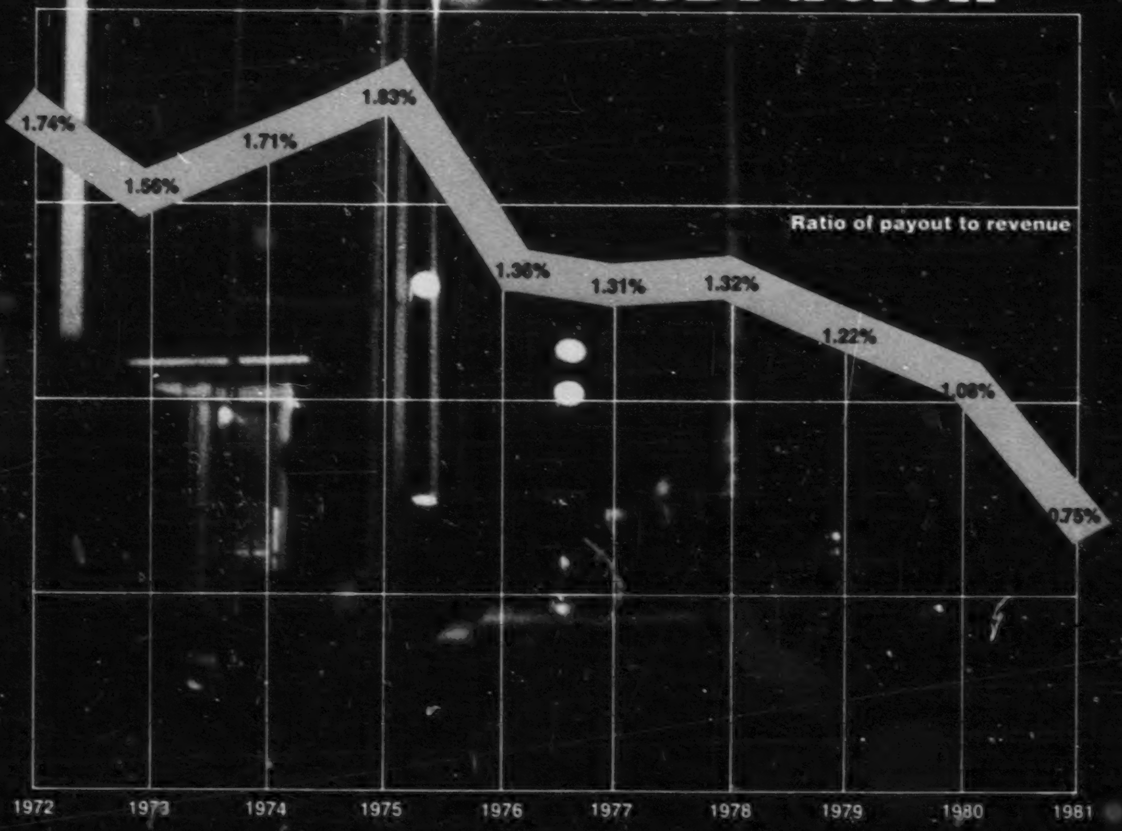
BN: Taking an aggressive approach to marketing

May 31, 1982

RAILWAY AGE

C8400-1 8/2/82

L&D prevention: There's cause for celebration



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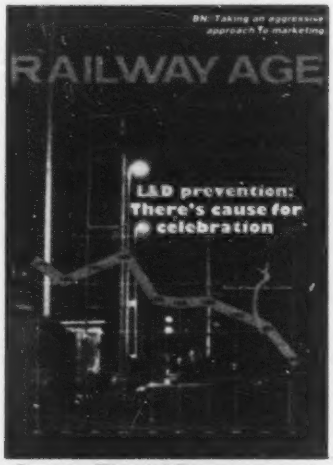
RAILWAY AGE

May 31, 1982

FEATURES


BN: Taking an aggressive approach to marketing
RAILWAY AGE
L&D prevention: There's cause for celebration

Cover: The L&D payout ratio continues to drop. *Page 17.*

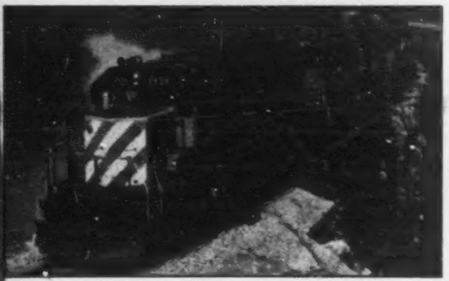
17 **L&D prevention: Cause for celebration**
Loss-and-damage payout was held to $256 million in 1981. That was 75 cents per $100 in freight revenues, compared with $1.08 the year before and $1.74 a decade ago. Senior Editor Gus Welty explores the reasons behind this turnaround.

20 **MoPac's winning strategy**
During the '70s, Missouri Pacific's L&D payout was as high as 2%. Last year it dropped to 0.77%. One factor has been computerization of freight claims, which has given MoPac L&D specialists a far-reaching data base to work with.

23 **BN targets its markets**
The railroad's new commercial structure includes separate, equal and cooperative departments for marketing/pricing (divided along commodity lines into four business units) and for sales/service. There's solid evidence that it's working.

37 **Amtrak: A world-class railroad**
Ridership of nearly 21 million made Amtrak the sixth largest intercity passenger carrier in 1981. "We have attained this rank within our industry," writes President Alan S. Boyd, "without extensive recognition and against great odds."

NEWS



Page 23

4 **Short and Significant**
10 **Bombardier wins 825-car order**
10 **Siemens bids low on PAT cars**
10 **RoadRailer scores again**
14 **Conrail makes a commitment**
14 **Massachusetts keeps a promise**
51 **Intermodal association gets its bearings**
54 **The Railroad Market**
55 **Export coal takes the spotlight**

COMMENTS

3 **Inside**
12 **Watching Washington**
14 **Lines on Labor**

DEPARTMENTS

Page 37

47 **People in the News**
48 **Suppliers**
50 **Industrial Traffic**
52 **100 Years Ago**
54 **Carloadings**
57 **Classified Advertising**
60 **Professional Cards**
60 **Guide to Advertisers**
61 **Products Report**
62 **New Literature**
62 **Advertising Sales**

L&D prevention:

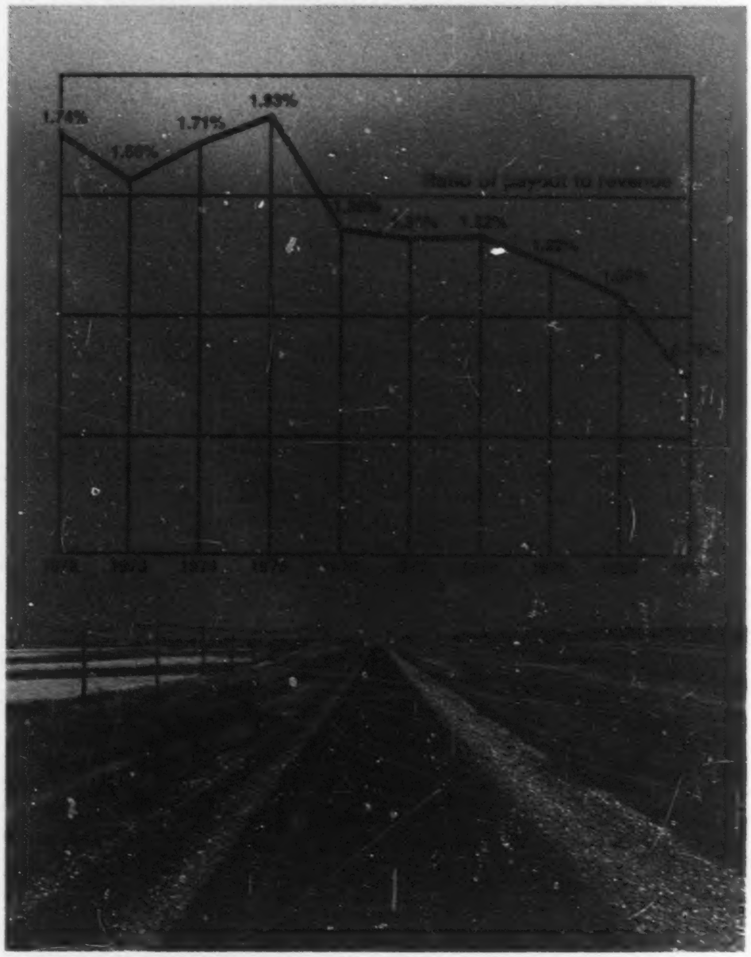
There's cause for celebration

By GUS WELTY,
Senior Editor

In the sense that avoidance of loss contributes to profit, railroad freight loss-and-damage prevention departments are rapidly turning themselves into profit centers.

Look at it this way: Just a dozen years ago, railroads were paying out $1.97 in loss-and-damage claims for every $100 of freight revenue. If that 1.97% ratio had remained constant, railroads in 1981 would have paid out $550 million in claims. But the ratio did *not* remain constant, thanks to a tremendous cooperative effort that has been made over the past decade by the AAR, individual railroads, shippers and suppliers. And last year, instead of paying out $550 million at a rate of almost $2 per $100 in revenue, the industry paid out just $256 million, or 75 cents per $100 in freight sales.

Of course, not all of this saving goes straight to the net-income line—but a major part of it does, because loss-and-damge prevention is a low-cost buy when it's laid alongside the benefits that can be gained.



Railroads last year paid out only 75 cents in L&D claims for every $100 of revenues, continuing a dramatic turnaround.

Among the highlights of this most-productive year in L&D prevention:

—Despite inflation, dollar payout declined. For 1981, claim payments were down by more than $67.6 million from the 1980 total, or 20.9%. Last year was the second year in a row that the actual dollar number declined, and at $256.8 million, payout was at its lowest point since 1973.

—For '81, carloadings were down by 4.2% and revenue ton-miles by 0.4%. But the number of new claims filed declined by 23.7%, from more than 1.5 million in 1980 to 1,182,427 last year. That was the lowest number of new claims filed since 1921.

—Of 59 commodity groups covered in the report of the AAR's Freight Claim and Damage Prevention Division, only six showed increases in payout. And payout declined in all 12 of the cause categories.

- **The figures don't lie.** What has accounted for the steady improvement in L&D numbers and the spectacular improvement last year? Not phony bookkeeping, but a lot of hard work by all concerned, work supported by top-management commitment by both railroads and customers.

L&D-prevention specialists are sensitive to suspicions that the numbers aren't all that they seem to be.

For instance, skeptics could figure that improvement has come about because railroads are simply being tougher about honoring claims, especially during a recession. But in the past, it has been claimants who have become tougher during recessionary times: Payout and the ratio have gone up, not down, during such periods—and it is a fact that the number of new claims filed has been going steadily down since the mid-1970s, with the sharpest drops in 1980 and '81.

What about the impact of increased coal movements? If the ratio is figured on a basis of L&D payout to revenues excluding coal revenues, the number for 1981 would be a few cents over $1—but the trendline would remain unchanged.

What about the slump in automobile production and in the transportation of setup autos and trucks and parts? Rail carloadings of motor vehicles and equipment dropped by about 4.5% last year—but claim payout on vehicles fell by 19.4% and payout on vehicles parts went down by 20.3%.

Well, then, what about commodities where railroads did show substantial increases in traffic—perishables, for instance? Early last year, there were indications that this commodity group might be in serious trouble—but year-end figures told a different story: Payout was down by more than $10.7 million, or 39.4%, even with those substantial traffic increases, and payout caused by delay to shipments dropped by more than 56%.

- **An ounce of prevention.** By any measure, the L&D improvement has in fact been brought about by hard work, and one of the hardest workers has been AAR's R.A. Grover, now executive director of the Freight Claim and Damage Prevention Division but director-damage prevention during those years in the 1970s when both the AAR and individual railroads began to realize that an ounce of prevention could prevent a pound of claims.

A self-described "old operating man," Ralph Grover—with strong support from key railroad L&D-prevention officers—turned the AAR damage-prevention staff into a professional group, developed priority systems for attacking damage on a commodity-by-commodity basis, fought for greater recognition of what prevention efforts could mean for the bottom line—and then, having spent each week battling damage, went out on his weekends and raced sports cars.

What is Grover looking forward to now? Still further reductions in both payout and ratio-to-revenue. It was in 1944, he recalls, that the industry had a .90% ratio. Then payout began climbing, and as time passed there developed a certain air of despair that the ratio would never come close to .90% again. A dollar, Ralph Grover says, was the goal, when the ratio was up around 2%, but hardly anybody thought the industry could ever reach it even though a number of individual roads were at or under $1. Then in 1980, the industry knocked on the door and in '81 railroads knocked it down, to post the 0.75% number.

Grover and Gary L. Held, who succeeded him as director-damage prevention, see several opportunities coming up.

One has to do with improvements which have been made in the AAR's packaging lab at the test center in Chicago. Extensively refurbished and re-equipped, the lab is now one of the best in the country, according to Grover and Held.

Another has to do with access to a simulator for L&D-prevention specialists, something that Ralph Grover has been after for several years, L&D people may get that access if AAR and the U.S. Department of Transportation can come to an agreement on AAR operation of certain of the facilities at the DOT test center at Pueblo, Colo., and if the equipment in place there can be modified to meet the requirements for L&D testing.

Under present circumstances, Grover points out, the testing of new devices and methods for damage-prevention is essentially a pass/fail kind of thing. There are impact tests and there are field tests with actual loads, and the failure rate is high. In large part, that's because once a test starts it goes to its logical end, and in field tests investigators are limited to looking at a load at origin, looking at it again at destination and then trying to guess what went wrong if in fact something did.

With a simulator, however, L&D-prevention personnel can observe what's happening while it's happening and perhaps stop the test to make adjustments when a failure is about to occur. As Ralph Grover puts it, use of a simulator would accelerate testing to a great degree, enabling testing personnel to react to a changing test environment and also making it possible for the staff to get into lading-protection design work.

Ratio of L&D payout to revenue

Year	Payout	Ratio
1981	$256,837,076	0.75
1980	324,513,612	1.08
1979	328,009,842	1.22
1978	304,368,908	1.32
1977	277,793,469	1.31
1976	265,638,079	1.36
1975	312,682,894	1.83
1974	293,115,475	1.71
1973	232,576,501	1.56
1972	234,547,470	1.74
1971	234,746,402	1.88
1970	228,316,389	1.97
1969	210,100,163	1.92
1968	181,995,576	1.76
1967	175,206,556	1.82

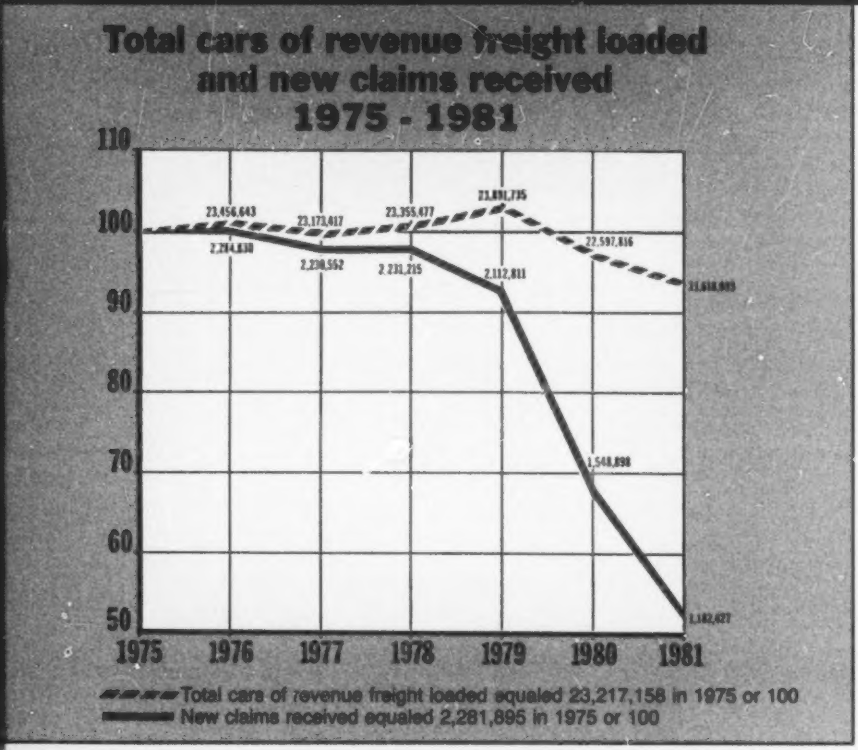
L&D: Cause—and effect

Cause	1981 payout	Change from 1980
Shortage, packaged shipment	$4,528,947	−30.6%
Shortage, bulk shipment	$7,736,207	−36.1
All damage not otherwise provided for	$122,279,696	−29.5
Defective or unfit equipment	$7,855,781	−26.1
Temperature failure	$8,443,611	−28.5
Delay	$3,793,630	−54.7
Robbery, theft, pilferage	$20,532,316	−17.3
Concealed damage	$1,068,394	− 0.5
Train accident	$68,658,198	−16.1
Fire, marine, catastrophe	$6,550,412	− 7.5
Error of employee	$3,175,100	−39.5
Vandalism	$2,214,784	−31.8

• **The 1981 story.** Clearly, L&D-prevention work has come a long way from the days when it was subordinate to claim-payment work, a cart-before-the-horse if ever there was one. And prevention, if Grover and Gary Held can continue to show results, in cooperation with individual railroads and shippers, can go a lot farther still. Take a look at what prevention accomplished last year, first on a major-commodity basis:

—Motor vehicles accounted for 24% of total L&D payout in 1981, even though the dollars were down from $76.3 million in '80 to $61.5 million, and L&D-prevention in this area remains the No. 1 priority item. Increasing use of screened and fully-enclosed cars helped to cut losses due to theft and vandalism by almost 25%, and, AAR says, with more safeguards in the handling of vehicle keys these losses should be cut even farther in '82. Ramp audits are also helping: "With the major origin ramps being audited, the AAR's damage-prevention staff has moved on to the destination ramps where such items as unloading of vehicles, the baying of vehicles and the handling of rail cars after unloading are checked." Another project, now in its final stages of implementation, is an exchange program between railroads and shippers which will involve the pass-along of inspection information via tape for use in helping railroads investigate claims and in highlighting problem areas before they get out of hand.

—A lot of prevention-staff work has also gone into the prepared-foods area, which includes canned goods, grain mill products and miscellaneous food preparations. This effort last year helped to turn a worsening situation into a better one. Payout on these commodities went up by 14.3% in 1980, but it dropped by 21% last year, with a major boost coming from a 27.1% decline in payout caused by use of defective or unfit equipment. A number of workshops on proper loading methods were held in '81, and the AAR, individual railroads and shippers are now testing a food-products warehouse audit (not unlike the auto ramp audits) which may reduce still further the potential for damage and claims.


Total cars of revenue freight loaded and new claims received 1975 - 1981

Total cars of revenue freight loaded equaled 23,217,158 in 1975 or 100
New claims received equaled 2,281,895 in 1975 or 100

—Carloadings of pulp, paper and allied products were down by 5% last year, but claim payout declined by more than 19%. This is yet another area where a substantial amount of prevention effort has been concentrated, including the joint development of a loading/unloading program by the AAR, the American Paper Institute and the Technical Association of the Pulp and Paper Industry.

—Loadings of chemicals and allied products dropped by 4.4% last year and L&D payout was down by better than 17%. In this category, almost 63% of the payout in '81 was caused by train accidents—and, while prevention specialists can't be expected to have much direct influence here, the AAR L&D data system will be used to monitor the situation to determine, for example, if specific types of railcars are frequently involved.

—On primary metal products, payout was down by 37.4% in 1981, and two programs undertaken last year should help to keep claim problems under control. In one, impact tests were run to evaluate performance capabilities of two types of retarding systems used in controlling floating loads of coil tin mill products; in the other, test loads were impacted with the coils loaded as free-floating units.

—Machinery (except electrical) was the only commodity area on the AAR's priority list to show a payout increase last year. But, while AAR is considering setting up a special subcommittee to investigate, it's pretty clear what accounted for 1981's 31.7% jump in payout: Payout due to train accidents went up by 106.7%.

—Coal? With carloadings up by 1%, payout went down by 31.4% to $9.2 million, helped along by a 41.4% drop in payout attributable to shortage-bulk shipment.

—For the industry, loadings of lumber and other wood products showed one of the biggest declines last year, 15.4%. But claim payout showed even a bigger drop, 29.4%. During the year, tests were run to evaluate new shipping methods proposed by the American Plywood Association and, AAR says, the implementation of better loading and bracing methods should bring payout down still further and help to keep it in hand when an upturn in traffic does come.

—Grain was another commodity with loadings down and payout down still more, with loadings off by 14.1% and payout down by 19.3%. A couple of things are helping here: The continuing decline in use of box cars for shipping grain, and the development of covered hopper hatch covers of improved design and manufacture.

—L&D-prevention specialists tend to watch damage on household appliances like hawks, in part because the first concentrated commodity-oriented damage-prevention effort, undertaken in the '70s, was in this area. The hawks didn't like what they saw in 1980, an increase in payout—but then payout was cut almost in half in '81, and in the meantime the AAR was developing a new training program to assist both railroads and shippers in preventing damage.

—The category which includes such commodities as clay, concrete, brick and glass saw loadings fall by 12.5% in '81, with claim payout down by more than 31%. But nobody is complacent: AAR will soon be out with a revised pamphlet on loading and shipping of building brick. This, Ralph Grover notes, "is a sensitive and expensive commodity which needs to be watched closely—and the data system will be called upon to examine specific shippers and origin points."

- **The cause categories.** As for the causes of loss and damage, all 12 of them did show declines in dollar payout and the reasons are not all that hard to spot. For example, payout due to shortage-packaged shipment showed up better because the dollars were down on motor vehicles and freight forwarder/shipper association traffic. Payout due to shortage-bulk shipment was down because of use of better equipment for movement of coal, and grain and because of development of more accurate weighing systems for grain. Payout lumped under robbery/theft/pilferage declined because the increased use of enclosed cars for motor vehicles made it harder for thieves to do their work, and that same factor was the big one in the reduced payout charged to vandalism.

If there is a problem with these cause categories, it lies in the way they are structured. Specifically, it lies with Cause 3, all damage not otherwise provided for. Payout due to Cause 3 was down last year, but Cause 3 as a percentage of total payout went up, edging ever closer to 50% of the total. A major part of the problem is that all claims related to improper-handling are dumped into Cause 3 along with payout which can't be laid to any of the specific causes. What do Grover and Held say? For one thing, they point out that "it would be much more profitable from a damage-prevention standpoint to assign known improper-handling its own cause-category," thus making possible better analyses on certain commodities.

That, however, like several other projects Ralph Grover and Gary Held are working on—such as getting their hands on an L&D-prevention simulator—is something for the future.

What they're savoring right now are the numbers—and if you can stand a few more, consider these:

—The actual decline in L&D payout last year was $67.6 million. But if you take inflation into account, using the Producer Price Index, the decline expressed in terms of 1980 dollars works out to be $89.6 million, or 27.6%.

—As prevention-priority programs have taken hold, fewer loads are generating claims. In 1970, customers filed 10.3 claims per 100 carloads shipped. By 1975, the figure had dropped to 9.8. Last year it was 5.6 claims per 100 carloads.

—In 1979, when the industry ratio of payout-to-revenue stood at 1.22%, 20 railroads were paying out more than $1 for every $100 in freight revenues. In 1980, when the overall ratio went down to 1.08%, there were still 16 roads in the $1-and-up category. Last year, with the industry ratio at 0.75%, only six roads remained above $1-per-$100, and of these four showed a decline from the 1980 ratio.

And as Grover quickly points out, these improvements could not have come about without commitment—not just at the AAR level but most importantly at the top-management level all across the industry. Or to put it another way, it used to be that when times got bad and revenues fell, damage-prevention programs felt the ax early-on. That doesn't happen any more, at least in most places. ■

Amtrak: A world-class railroad

"We concluded 1981 as America's sixth largest intercity transportation company. We attained this rank without extensive recognition and against great odds."

By ALAN S. BOYD
President, Amtrak

We cannot afford to let misconceptions about our company and the future of rail transportation persist. We are a $1.3 billion annual enterprise with assets of $2.6 billion.

By many measurements, the National Railroad Passenger Corp. emerged as the business surprise of the year within this country's travel and transportation industry.

Robert G. Lewis

Our company achieved revenue growth of 16% in 1981 while many of our competitors faltered due to the bleak, regressive transportation market. The average revenue growth of scheduled air carriers during the same period, for comparison, was a limited 7-10%

Among public, intercity transportation modes, only one demonstrated growth in revenue passenger miles. Amtrak trains experienced a 4% increase in passenger miles, while major airlines declined nearly 7%, scheduled intercity buses dropped about 2%, and automobile travel slowed 1%.

On-time performance of our trains rose 11.6% over the previous year. On many routes, trains consistently perform better than scheduled airlines. High-speed service on the Northeast Corridor between Washington and New York is 92% on time.

We concluded 1981 as America's sixth largest intercity public transportation company, with ridership of nearly 21 million customers. We have attained this rank within our industry without extensive recognition and against great odds.

Operating in the intensely competitive, complex and ever-changing transportation marketplace, we are showing sustained growth at industry-leading levels.

Our young corporation's superior 1981 performance reveals extraordinary progress and maturation. Yet, the riches of one year are not as telling as the results over time. Our dramatic short-time achievements are buttressed by equally appealing growth trends demonstrating consistency and vitality.

Every indicator remains positive. The five-year revenue trend has been upward. Passenger miles, fare yields, on-time performance, equipment dependability and service quality have shown similar progress over the same five-year period.

Meantime, the total corporate employment trend is stabilizing while yielding increased productivity. Our capital investment program has improved many employee workplaces and introduced new technology as we have become a lean, adaptable company.

These positive trends portray our commitment to a policy of constant growth that will not substitute short-term success for compromised long-term prospects.

We are a transportation company built and strategically positioned for the future. We have brought the nation a world-class passenger train network. It is operating at increasingly high efficiency levels, supported by a creative marketing effort which is generating strong consumer demand.

During 1981, we undertook an appraisal of our principal opportunities and a deliberative allocation of material, human and financial resources.

Where necessary, we have consolidated departments, such as in the operations and maintenance functions, and streamlined management reporting relationships. We have continued to strengthen our management group through an aggressive recruiting program for skilled, business-experienced executives.

Notwithstanding the turbulent year, the executive staff of the corporation has devoted more effort to business planning than during any previous period in the company's history. We are now bringing systematic planning to more levels of management enabling us to focus strategic efforts to the best effect.

We do not embrace a static strategy. It is essential we remain dynamic in our unique business and government environment. One of our company's great organizational strengths is this ability to adapt rapidly to change while still pursuing our basic mission.

Decentralization, one of our corporate goals continued during 1981, places management responsibility where it encourages growth and initiative. Anticipating challenging conditions in the years ahead, the corporation recognizes the growing importance of employee productivity, ingenuity and dedication.

Unexpectedly, 1981 saw the company endure the most severe conflict in our decade-long existence. Proposed federal budget reductions threatened an overnight shrinking of the national, intercity passenger rail system to a Northeast-only operation.

The corporation again was placed in the position of defending itself, facing a level of scrutiny and challenge seldom known to most

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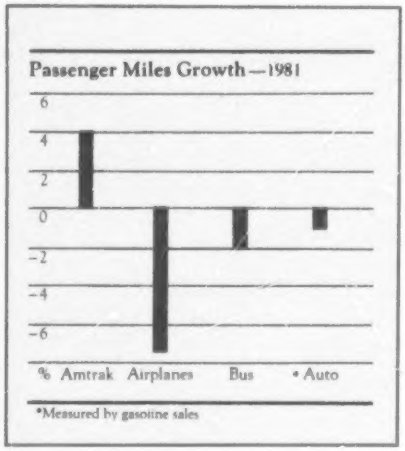
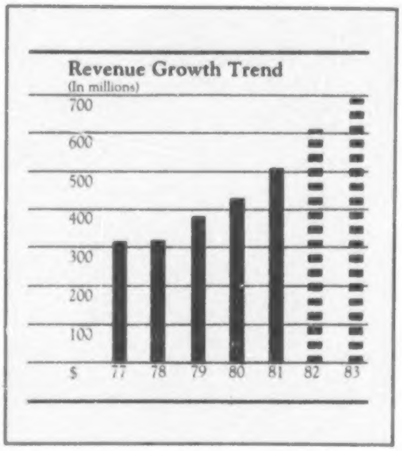
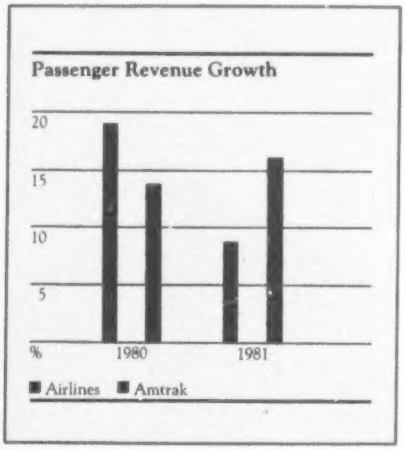
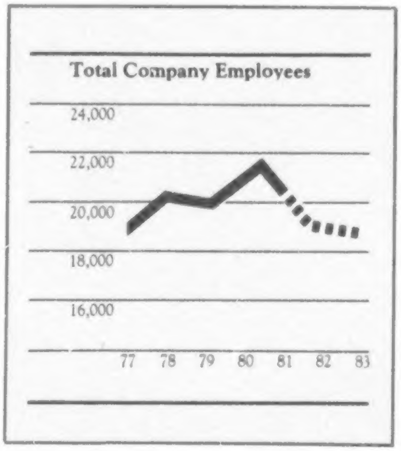
Excerpted from Amtrak's 1981 annual report.


Passenger Miles Growth—1981

•Measured by gasoline sales


Revenue Growth Trend
(In millions)


Passenger Revenue Growth


Total Company Employees

American companies. Yet, the mounting record of achievement stated a persuasive argument for support. The debates ended with a reduced federal operating grant adequate to maintain 90% of the national passenger train system with only minor train discontinuances and route adjustments.

Importantly, the year's legislative actions included modifications to existing laws that bode well for increased management flexibility. Legislative adjustments which now enable direct and straightforward negotiations with labor unions are one of our greatest opportunities. They will strengthen our ability to perform and manage the company in a businesslike fashion.

With the Congressional action came new complications. We are now legislatively mandated to eliminate the deficit of on-train food service. A modified meal system introduced during the year has reduced the per passenger outlay by more than half. Additional food service techniques and revenue enhancing measures are being tested and implemented.

The Congress also structured a new corporation as a possible successor to Conrail for the operation of commuter trains in the Northeast. It is presently uncertain which commuter rail agencies will contract with this new corporation for services. The transfer of commuter service to this new corporation is certain to present unknown problems. At the least, new agreements covering interaction with Amtrak trains and facilities must be negotiated. It is an issue that may present one of the corporation's greatest dilemmas.

Requiring that the company achieve a 50% revenue to cost ratio in 1982 was an additional legislative element. The total revenue to expense ratio was 42.1% in 1981, up from 38.3% in 1978, and we remain on course to reach the Congressional goal, three years ahead of the original schedule.

Moreover, the National Railroad Passenger Corp. has set an internal goal for covering all short term avoidable costs from the farebox by 1985. Achievement of this goal places the company in a financial situation which closely parallels the nature of funding support enjoyed by all other forms of public transportation.

Today, we are appropriately positioned to meet our many new challenges. We have a strengthened capital base, an equipment fleet now capable of taking advantage of marketing opportunities, and the dedication and professionalism of over 18,500 men and women from our diverse population.

[There are] several crucial and interdependent keys to the corporation's future success.

Among those keys is the issue of new working relationships with our 15 unions. Setting a precedent, management selected to negotiate independently with our non-operating unions. With federal support reduced, it was apparent the company could not absorb the anticipated national rail labor settlement.

We are asking our 15 unions for major concessions in the form of work rule reforms and wage increases substantially lower than those of recent industry-wide settlements. And, we are proposing a cooperative labor-management approach to increasing productivity.

Our conceptual approach is simple. We seek to maintain every possible job and create a structure where there will be long-term employment stability with the least possible disadvantage to our dedicated workforce. We are asking only changes in restrictive work rules and other labor-related procedures such that we might have a fair eight hours work for eight hours pay. We also seek to gain the managerial flexibility needed in a dynamic business. The outcome of the historic negotiations will mark a crossroads for the company.

We are benefiting from the shift in our society toward civilized, relaxed lifestyles. Passenger train transportation provides the travel pleasure and comfort now dwindling in other modes. In the future, passenger rail travel will become even more energy conserving. Fuel expense for the Amtrak system represents only 10% of total operating cost, compared to nearly 40% for the airlines. Thus, our business is affected less by fluctuation in world petroleum markets and is situated advantageously as energy prices rise and our productivity increases.

The trends in transportation and society give us reason to be extremely optimistic about our long-term prospects. Our marketing estimate suggests the Amtrak system has the potential for carrying 48 million passengers by 1990, compared to the 20.6 million of today, an impressive increase by any standard.

There are enormous vistas of future growth ahead. We face them with a sure sense of direction and a balanced strategy for growth. Implicit in our taxing internal goals is the requirement that the corporation continue to outperform the industry as a whole.

For the first time since our formation in 1971, management energies are focused on long-term objectives. We have embarked upon an aggressive business diversification program which will help [illegible] meet future system capital requirements [illegible]igh speed trains utilizing international technologies are on the immediate horizon.

Our vision of being America's finest transportation company has never been clearer. Our performance justifies this aspiration for the future. ■

Market

CARLOADINGS

Loadings of revenue freight in the week ended May 8 totaled 378,617 cars, according to the Association of American Railroads. This was a decrease of 3,407 cars, or 0.9%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended May 8 are estimated at 16.3 billion, a decrease of 1.6% below the corresponding week of 1981. The 1981 week included the sixth week of the coal miners' strike

REVENUE FREIGHT CARLOADINGS

Commodity	**May 8 week**	**May 1 week**	**Apr. 24 week**
Grain	23,746	23,024	25,964
Other farm products	4,185	4,779	4,449
Metallic ores	19,082	20,783	20,424
Coal	118,095	120,213	117,646
Crushed stone, gravel & sand	10,041	9,606	9,942
Nonmetallic minerals	10,531	11,557	10,852
Grain mill products	11,669	12,287	12,079
Food & kindred products	13,507	13,660	13,695
Primary forest products	15,756	15,393	15,025
Lumber & wood products (except furniture)	5,833	6,535	6,496
Pulp, paper & allied products	16,596	17,458	16,956
Chemicals & allied products	24,450	24,878	23,264
Petroleum products	4,672	4,645	4,779
Stone, clay & glass products	10,032	10,054	10,024
Coke	4,992	5,104	5,177
Metals & products	10,269	11,754	11,066
Motor vehicles & equipment	17,078	17,197	17,294
Waste & scrap materials	8,454	8,694	8,876
Forwarder & shipper assn. traffic	8,690	8,890	8,774
All other carloads	40,723	42,789	41,959
LCL traffic	216	226	261
Total Cars Loaded	**378,617**	**389,526**	**385,002**
Cumulative total,		1982	1981
19 weeks		**7,097,074**	**7,921,655**
Estimated revenue ton-miles			
(billions), 19 weeks		**306.3**	**336.8**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended May 1 totaled 37,055 cars (15.6% above the corresponding 1981 week) and 68,052 trailers or containers (up 9.9% from 1981). Cumulative volume for the first 18 weeks of 1982 is 623,698 cars (up 8.8% from 1981) and 1,109,782 trailers or containers (up 6.2% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Apr. 14 totaled 4.5 million tons (down 9.8% from 1981). Cars loaded totaled 61,378 (down 16.9% from 1981). Cumulative loadings for 1982 were 64.5 million tons (down 9.6% from 1981).

- *CP Rail.*—A $17-million 1982 budget for Atlantic Region improvements includes: replacement of 235,000 ties, $6.4 million; installation of cwr on 19.2 miles of double track line between Beaconsfield and Vaudreuil, $5 million; replacement of rail at various points between Magog and Foster, $550,000; bridge replacement, $2.2 million; acquisition of 20 brush cutters, ballast regulators, switch tampers and speed swing machines, $1 million; installation of eight hotbox detectors, $900,000; installation of closed circuit tv at St. Luc Yard, Montreal, $800,000.

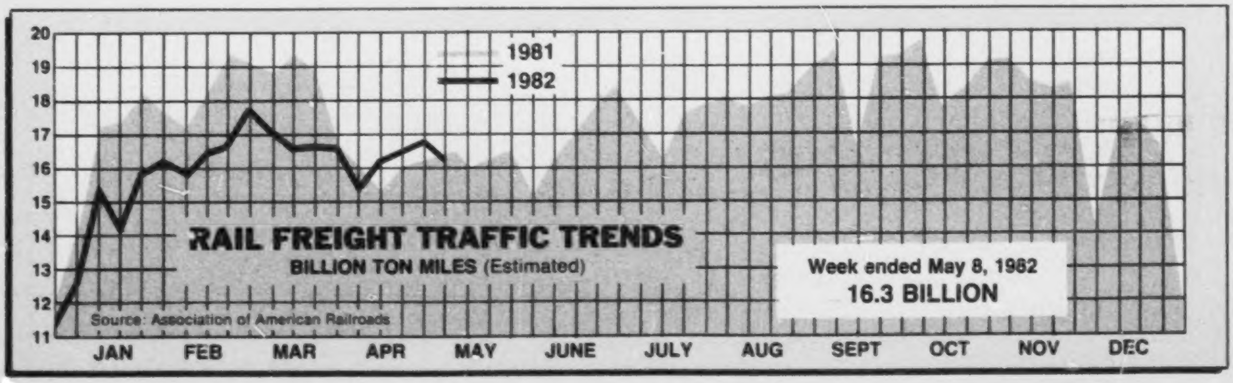
- *Georgia Power Co.*—Ordered 225 100-ton open top hoppers for coal unit train service from United American Car Co. The cars, to be equipped with the Miner AutoMEC air cylinder operated bottom discharge mechanism for in-motion unloading, will be built at Cartersville, Ga.

- *National Railways of Cameroun.*—Placed a $13.4-million order with Bombardier for ten 2,400-hp, MX620 locomotives. Production is to begin in the first quarter of 1983 at the Montreal plant of Bombardier's Rail and Diesel Products Division, with delivery to be completed three months later. The order is financed by loans from Canada's Export Development Corp. and the Canadian International Development Agency. Bombardier has already delivered 20 similar locomotives to Cameroun.

- *New York City Transit Authority.*—Ordered 18 bottom-dump, 50-ton, 100-cu-ft-capacity ballast cars from Maxon Corp. at a cost of $1.65 million. Delivery will begin in 1984.

- *System Fuels, Inc.*—Ordered 580 Coalporter gondola cars from Bethlehem Steel. Completion of the order, on which work will begin in June, will bring the New Orleans, La., utility's fleet of Coalporters to more than 1,300, according to William T. Anthony, Bethlehem Steel's manager of railroad product sales. The 100-ton 4,000-cu-ft-capacity cars will be used to haul coal from the Powder River Basin in Wyoming to power plants in the southwestern U.S. Bethlehem is now completing work on an order for 350 open-top, quadruple-hopper cars for Denver & Rio Grande Western. Work was recently completed on 350 specially designed Coalporters for Bethlehem's own use (*RA*, Mar. 29, p. 14).

- *Vancouver ALRT.*—A $25-million contract has been awarded to SEL Canada, a division of ITT Industries of Canada Ltd., to supply command and control systems for the Vancouver Advanced Light Rapid Transit System. The contract was awarded by Metro Canada Limited, a subsidiary of the Urban Transportation Development Corp. (UTDC), which has the prime contract for the Vancouver line. SEL Canada will supply an integrated automatic train control system called SELTRAC, which has also been chosen for the Toronto Transit Commission's Scarborough light rail project.



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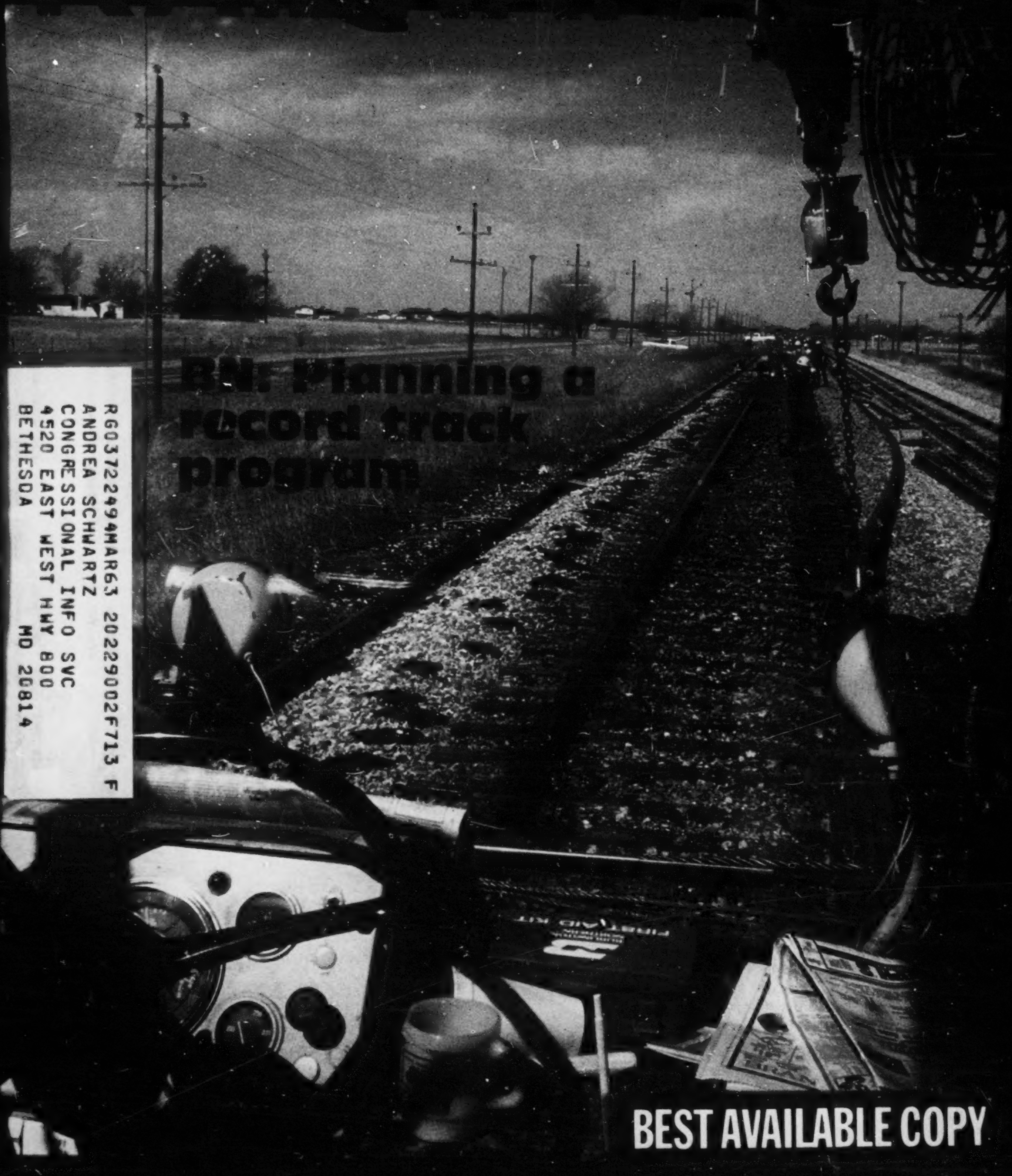
June 14, 1982

Rail transit: 14 forgotten cities

BN: Planning a record track program



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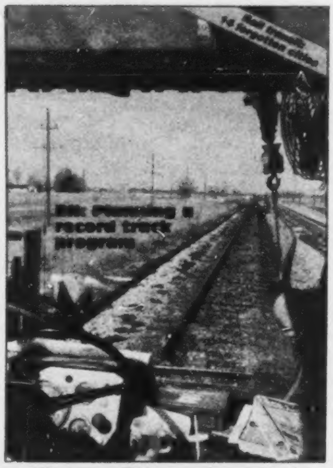
RAILWAY AGE

June 14, 1982

FEATURES



Cover: Photo of cwr being installed on BN was taken from the cab of a crane. *Page 13.*

13 **BN: Planning a record track program**
Business may be down, but BN's efforts to improve its property (and productivity) retain a high priority.

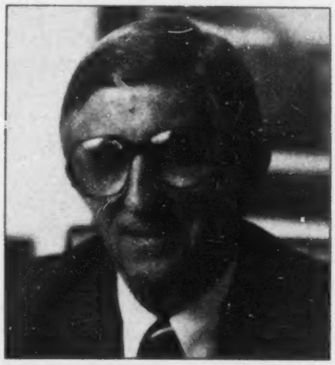
18 **Kansas City roads push terminal modernization**
As far as yards are concerned, everything's up to date in Kansas City, or soon will be as half a dozen carriers get ready for a merger-related surge of traffic.

23 **Pulling Pullman together again**
In an exclusive interview, President Jack Kruizenga predicts that the venerable carbuilder, idle for a year, will return as an aggressive force in the market.

28 **Rail transit: Fourteen forgotten cities**
A landmark study by the Regional Plan Association has come up with the first national census of cost-effective urban rail corridors. It's an eye-opener.

37 **Computers speed waybill data exchange**
More than half of all waybills originated by U.S. railroads are now being transmitted electronically, and additional uses for EDI are fast being found.

40 **Comeback for cattle cars?**
USDA and Ortner are promoting a Steer Palace Car that, if successful, could rustle some lucrative livestock traffic off the highways and onto the rails.



Page 23

NEWS

4 **Short and Significant**
8 **$140 million for SFI coal project**
8 **New rail line for New York**
8 **Senate questions Bombardier deal**
10 **First-quarter earnings sag**
11 **Amtrak wins labor concessions**
26 **Grand Trunk makes its bid for Milwaukee**
48 **The Railroad Market**

Page 28

COMMENT

3 **Inside**
10 **Watching Washington**
11 **Lines on Labor**

DEPARTMENTS

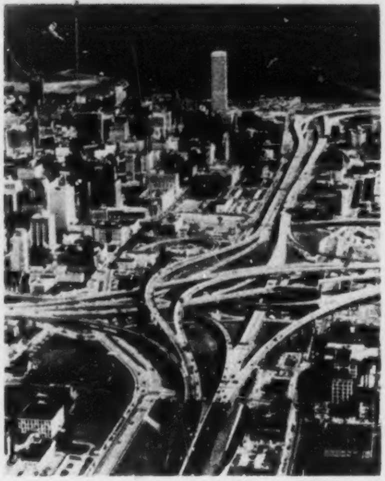
43 **100 Years Ago**
44 **People in the News**
44 **Transit**
44 **Suppliers**
46 **Advertising Sales**
48 **Carloadings**
49 **Professional Cards**
50 **Classified Advertising**
51 **Guide to Advertisers**
52 **Products Report**
52 **New Literature**

Los Angeles

Honolulu

Seattle

Houston


Milwaukee

Rail transit: Fourteen forgotten

The building boom of the past decade bypassed 14 cities that should be prime candidates for rail transit. That's the conclusion of a study that UMTA sponsored—and probably wishes it hadn't.

President Jimmy Carter thought rail transit cost too much and said so in a petulant handwritten note to his Transportation Secretary. President Reagan's DOT sees funding for new rail starts as a blob of fat that needs to be carved out of the federal budget. Little wonder, then, that neither the Carter nor the Reagan DOTs has embraced with enthusiasm the findings of an ongoing study that has turned up persuasive evidence that no fewer than 14 additional U.S. cities need some form of rail transit and can make it pay for itself—in energy, labor, land, and passenger-time savings.

This far-ranging study, which has already been granted landmark status by transit-industry experts, got under way several years ago, funded by DOT's Urban Mass Transportation Administration at a time when Washington was less hostile to rail transit than it has now become. Some of the findings were available to industry insiders as long ago as late 1980. But no attempt was made to make them public until a few weeks ago when the prestigious Regional Plan Association (RPA) of New York, New Jersey and Connecticut, which conducted the study, did so at a press briefing in Washington.

That briefing took place not at the DOT but at the Carnegie International Center. Officials of UMTA were present only as observers. UMTA has, in fact, been reluctant to comment at all on the study. One request for comment was brushed aside with the observation that the study was old news—although it did not, in fact, become news at all until the RPA's briefing. That briefing coincided with publication of the findings in book form by the Indiana University Press.*

What was "old news" to UMTA, however, was news indeed to planners in some of the 14 cities that the study identifies as prime candidates for cost-effective rail systems. These cities are Los Angeles, Seattle, Honolulu and Houston, all of which meet the study's criteria for rapid transit; and ten others that meet its criteria for light rail—Dallas, St. Louis, Milwaukee, Minneapolis, Indianapolis, Louisville, Cincinnati, Denver, Kansas City and Columbus. If the recommendations implicit in the study were carried out, the four rapid-transit cities would put in 180 miles of lines, and the ten light-rail cities would install around 200 miles.

But the RPA report goes farther than that. While the study concentrated on 29 cities that do not now have rail transit, it also applied its criteria to the "old" rapid transit cities (New York, Chicago, Philadelphia, Boston, San Francisco and Cleveland) and to those cities that are just now building or completing systems (Washington, Atlanta, Baltimore and Miami). In the former category, RPA identified 16 new corridors where 127 miles of new lines would meet its criteria; and in the latter, 10 corridors totaling 55 miles. It also found a potential need for 75 additional miles of light rail in cities with existing LRV or streetcar systems.

"Altogether," concluded Regional Plan Association Vice President Boris S. Pushkarev, principal author of the report, "potential additional rapid transit mileage in the United States conforming to the criteria presented here might total about 350 miles in 40 corridors, which represents about a 50% expansion of the extant 647-mile rapid transit system...Potential additional light rail mileage conforming to the criteria might total about 320 miles, which represents more than a doubling of the extant 215-mile light rail and streetcar system. Both items together would increase urban rail travel in the United

---

**Urban Rail in America: An Exploration of Criteria for Fixed-Guideway Transit*, by Borris S. Pushbarev with Jeffrey M. Zupan and Robert S. Cumella. 289 pp. $27.50. Indiana University Press, Bloomington.

Dallas

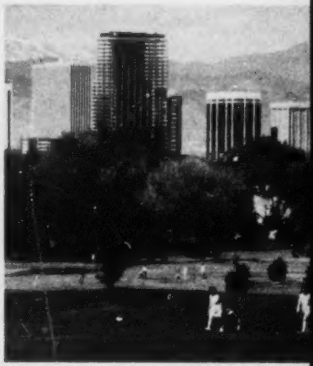
St. Louis

Louisville

Indianapolis

Cincinnati

Minneapolis


Denver

Columbus

Kansas City

cities

States by over 40% of 1980 levels of use."

Such a program, the Regional Plan Association estimates, would cost an estimated $25 billion in 1982 construction dollars—$19 billion for the rapid transit lines and $6 billion for the light rail. (Bid prices would be higher since they would anticipate inflation over a construction period of several years.)

• "A positive tool." One transit official who has studied the report carefully is John A. Dyer, general manager of the Southern California Rapid Transit District, and he is enthusiastic. He calls the study "a positive tool" and says SCRTD is using it "everywhere from City Hall to Congress" to promote a rail transit plan for Los Angeles. (Preliminary engineering is to be completed next month for an 18-mile starter rail line along Wilshire Boulevard. That line would cost $2.1 billion, of which $1.6 billion would have to come from a federal government that is now committed to a policy of no new federally-aided urban rail systems.)

But others are less well informed about the study's findings. General Manager Richard F. Davis of the Kansas City Area Transportation Authority says he has read about the report but hasn't seen it. Jerry Johnson, director of planning for the Dallas Transit System, told *Railway Age* he hasn't seen the report and only heard about the Washington briefing when he got a call from a local reporter.

It is no foregone conclusion, of course, that planners in all of the cities involved will rush out to hire engineering consultants even when they have thoroughly digested all of the exhaustive statistical data and the accompanying maps and analyses in the RPA report. But for those who *are* interested in pursuing rail-transit planning the study provides for the first time, as Regional Plan Association President John P. Keith puts it, "a uniform data base and a consistent set of analytical tools" to facilitate site-specific studies.

• "A manual for alternatives analysis." How can transit planners most effectively use the report? *Railway Age* put the question to Pushkarev in an interview in his New York office.

"First of all," said Pushkarev, "our report has numbers cities can use as a reference point for placing themselves in the continuum of existing systems. It provides a method for estimating travel volumes and for calculating what sort of system makes sense. It can be viewed as a manual for alternatives analysis on a national scale, providing a uniform and comparable methodology and data base."

While 17 existing programs were studied to develop "threshold" criteria for new systems, Pushkarev emphasizes that "we didn't stick to the averages. We looked at the best attainable performance given present circumstances. Some of the old studies, for example, looked at average labor requirements. But when you average in Boston, which has the highest labor requirement per unit of output on rapid transit in the nation, you come up with figures that are not really that different from buses on the average. So we didn't look at things on the average—we looked at specific corridors, specific volumes, and we assumed a labor situation that was the best practically attainable under current conditions in the country—for example, the situation that exists at PATCO."

• Energy efficiency. The RPA study's findings also differ from those of other studies in another important area—that of energy efficiency. After analyzing all factors influencing energy consumption by the various modes, direct and indirect, the report concludes:

"It makes sense to build rail transit even as a medium-term (22-to-45-year) energy conservation measure for nearly the full range of service volumes currently encountered on rapid transit, and for all but the lowest volumes currently encountered on light rail provided that the vehicle occupancy does not fall much below 23% of the places offered, provided that tunnel routing is used sparingly on the more lightly used lines, and provided that wayside and station energy costs are kept similar to those of the simpler systems, such as CTA, NYCTA, or PATCO."

Why have other studies—notably a well-publicized study conducted by the Congressional Budget Office—found rail transit to be less energy efficient than highways and streets? Because, says the RPA report, others who have pondered the problem have fallen into one or more of the following traps:

"(1) Failure to fully account for the energy cost of highway fuel production and distribution.

"(2) An understatement of bus fuel use at slow urban speeds and of indirect bus energy requirements for maintenance of vehicles and streets.

"(3) An overstatement of indirect rail energy requirements, all too often patterned after BART simply because it has the best data. Methodological errors in this area include translating transit workers' wages into Btu's as an 'indirect energy cost' of rail. The energy cost of a piece of final demand (such as place-miles offered) is built up from streams of interindustry purchases. One cannot add workers' wages to this, since the energy purchased for some is but a different slice of final demand. These are not affected if transit workers were to be fired by a transit agency, for they would still need to consume Btu's in their private lives.

"(4) Exaggeration of the energy used for access trips to a rail line. Thus, one study assigns a false 30% penalty to combined auto-and-rail trips on the assumption that they are that much more circuitous than auto trips.

"(5) Failure to account for reduced auto ownership as a result of rail transit, a factor that strongly contributes to energy savings."

- **Rail transit and the automobile.** The RPA study broke new ground almost everywhere it turned—and when it turned to the relationship of rail transit and auto ownership, the findings were particularly revealing:

"The reduction of auto travel in the six [existing] 'rail regions' is much greater than that attributable to the direct replacement of auto travel by rail travel. On the average, auto travel per capita in the six major urban areas with rail was 30% lower than in four urban areas of comparable population size that had no rail in the early 1970s [Los Angeles, Detroit, Washington, and St. Louis]. Auto travel per capita in 'rail regions' was also 20% lower than in 42 urban areas with population in the 0.5 to 2.0 million range served by bus. Direct replacement of auto travel with rail travel would only suggest a 6% to 7% reduction in each case. The remainder can be attributed to lower auto ownership and less travel per auto in the 'rail regions.'

"The below-average auto ownership and use is not related to income; in fact, the median income in the 'rail regions' is slightly higher than in the regions without rail. Their freeway supply is also similar, with about 70 miles of freeway per million residents in each of the two groups in 1972.

"The principal reason for the suppression of both auto ownership and auto use is high density of development, especially in and near large downtowns, which are simultaneously made possible and stimulated by

Establishing travel-volume

"At what volume of traffic may a fixed guideway be justified?"

That was the basic question Boris Pushkarev and his associates asked as they sought to establish criteria for fixed guideway systems.

To arrive at an answer, they posed six other questions and analyzed data from existing systems to come up with some broad guidelines for transit planners.

The following summary is adapted from **Urban Rail in America.**

1. What is the maximum volume at which a fixed guideway can offer adequate space per passenger?

At the standard of 5.4 square feet per passenger, and at a frequency of 30 trains per hour, existing rapid transit systems in the United States and Canada have a maximum capacity of between 20,000 and 34,000 passenger places per track per direction in the peak hour, and anticipated light rail operations, up to 16,000....

Trains on more than half the 65 rail tracks entering downtowns in the United States and Canada do in fact provide 5.4 square feet or more per passenger during the peak hour. Still, 21 tracks—half of them in New York City—fail to meet this standard as a matter of operating policy: they could provide more space by running more trains. Only six tracks cannot meet the standard even if maximum service were provided; five are in New York and one in Montreal. Building new rail lines in the United States to relieve overcrowding is only relevant in New York. The highest volumes in other cities are no more than one-third of maximum capacity.

2. What is the minimum volume at which it can offer adequate service frequency?

To avoid excessive waiting time, no rapid transit or light rail operation in the United States and Canada schedules, as a rule, an interval between trains greater than 7.5 minutes (eight trains per hour) at downtown entry points within the peak hour. Taking this as a reasonable minimum service frequency and given practicable train lengths, the minimum volume per peak hour per direction becomes about 3,400 passenger places to support rapid transit and about 1,000 places to support light rail. These minimum volumes are equivalent to about 56 and 16 standard buses per direction per hour respectively. Such a level of peak-hour use at the downtown entry point translates to an average weekday bidirectional volume of about 15,000 passenger-miles per mile of the entire line on rapid transit, and on light rail and automated people movers to about 4,000 daily passenger-miles per mile of line. These are the lowest levels of existing service in the United States, called the *threshold of existing service* in the discussion below.

3. What is the minimum volume at which it can attain labor savings compared to bus operations?

Labor represents some 80% of the cost of operating public transportation, and increasing labor output is the key to reducing this cost. A comparison of 56 transit properties in the United States and Canada shows the following averages of labor output in passenger miles per worker per year:

85,000 on five automated peoplemovers;

150,000 on two peoplemovers with high passenger occupancies;

150,000 on buses with mostly local service;

160,000 on light rail and streetcars;

260,000 on rapid transit overall; and

310,000 on six new rapid transit systems.

These averages of output per worker are influenced by the passenger occupancy of the vehicles, operating speed, volume of service and service frequency, and by the manning of stations and trains. A labor requirements model is developed which responds to each of these factors and assumes that the overmanning typical of some older systems is avoided.

The model shows that to obtain lower labor costs per place-mile than typical urban buses (with their average 12 mph operating speed), very low volumes of service on fixed guideways are sufficient. On rapid transit and light rail, they are below the threshold of existing service. On automated peoplemovers, they are somewhat above.

To obtain lower operating costs than express buses operating at a speed equal to rapid transit or light rail (22-25 mph), volumes on rapid transit must be one-and-one-third to twice as high as the threshold of existing service, depending on service frequency, and those on light rail twice as high even with low service frequency; fully attended stations can only be provided at about three times the threshold of existing service.

At exactly what volume in this range the labor cost of rail falls below that of express buses if their speed is equal depends on the balance between the labor needed to operate vehicles and the labor needed to maintain the right-of-way; these vary from system to system. More important than the exact difference in average costs is the difference in marginal labor requirements to provide more service when traffic growth is anticipated. If the labor cost of a given amount of service in the range indicated is set equal to 1, then that of providing double the service by articulated express buses on busways is 1.9; by light rail, 1.7; by automated peoplemover, 1.6; and by rapid transit, 1.5 to 1.4.

4. What is the minimum volume at which it can attain energy savings compared to modes previously used?

In comparing the energy use of electric vehicles with those propelled by liquid fuels, energy losses at electric power plants and those in the refining and delivery of petrole-

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criteria for fixed guideways

um products must be accounted for. Compared that way in gross fuel use terms, rail cars and buses (including trolleybuses) have similar vehicle requirements for vehicle operation per passenger place. Buses need somewhat more energy at slow intracity speeds and less at high frequency speeds than railcars. Both are three times more efficient than the 1972-76 automobile in urban use, at 12 miles per gallon.

The difference in energy use between the auto and public transit will shrink in the years ahead but will not be eliminated. Meanwhile, the energy cost of electricity will fall as cogeneration reduces thermal loss at power plants. This will favor electric fixed guideway vehicles and trolleybuses, but will not be enough to make the electric automobile—with its battery-related energy losses—competitive in energy consumption with vehicles that rely on a continuous electric supply.

Apart from vehicle operation, energy is required for rail vehicle maintenance, manufacture, station, and right-of-way maintenance and guideway construction. The latter two are fixed costs: as service volume increases, their magnitude per unit of service declines. Construction energy does not affect the energy cost of existing systems, and even on new systems it is not clear whether it is a net drain of energy or not. Money spent for rail transit construction typically results in less energy use than the same amount spent for consumer goods and services which would be a likely alternative expenditure.

Determining at what point a fixed guideway will actually save energy requires an answer to the question, "Compared to what?" Two assumptions are made about the modes previously used, one reflecting a typical mix of former auto and bus use on the line-haul trip alone, the other including a sharp increase of feeder bus use to the rail line. The circuitousness of "before" and "after" trips appears to be similar, but depends in each circumstance on the street layout and the location of the rail line. No across-the-board adjustment can be made for it. Such an adjustment is necessary, however, for auto travel foregone due to reduced auto ownership near rail stations. At medium to high service volumes, one-third or more of the energy cost of rail transit can be free—paid for by savings from reduced auto ownership.

To save energy compared to modes previously used, amortizing construction over 22 to 45 years, an above-ground rapid transit line can have a travel volume below the threshold of existing service; if in tunnel, the needed travel rises to about double that threshold.

A light rail line above ground can begin to save energy with a travel volume roughly twice the threshold of existing service above ground and roughly seven times that in a tunnel.

A peoplemover of currently prevalent rubber-tired design in a downtown application can begin to save energy at volumes 10 to 20 times above the threshold of existing service. The poor energy-saving prospects of peoplemovers in downtowns are due to the previous mode of travel used by their users (assumed to be one-third pedestrians), the lack of any reduction in auto ownership (which occurs in residential areas), and high fixed energy costs of wayside maintenance and construction even in the absence of snowmelting, which alone can exceed the energy cost of vehicle operation.

In sum, it makes sense to build rail as a medium-term (22- to 45-year) conservation measure for the full range of travel volumes currently encountered on rapid transit and for all but the lowest light rail volumes, provided that tunnels are not used for light volumes, that station and wayside energy consumption is kept in scale with that of the simpler existing systems, and that passenger occupancy is maintained not far below 23.3% of places provided annually. This does not consider prospective change: regenerative braking that will save energy and station air-cooling that will cost energy to improve trip quality.

5. What is the minimum volume at which it can attain savings in land compared to modes previously used?

To use the space taken up by a traffic lane on approaches to a downtown more efficiently than a freeway with some bus service, a rapid transit line requires a travel volume that is just below the threshold of existing service. For a light rail line to use space more efficiently than an arterial street lane, travel volume must be roughly at its threshold of existing service.

In addition, fixed guideways economize on land for downtown parking, which is reflected in dollars of parking costs saved.

When necessary, fixed guideways can avoid the use of land at the surface altogether by going underground at lower cost than freeways or busways, which require more ventilation and more room underground. Tunneling in lieu of elevated construction pays for itself in direct land value only at prime downtown sites—about $5.6 million an acre in 1977 prices. But other countries seem to feel that indirect community benefits justify much more extensive tunneling. If worldwide averages were taken as a norm, travel volumes in the light rail range in the United States would warrant placing from 10% to 35% of the guideway in tunnel. Travel volumes in the rapid transit range would warrant placing from 35% to 70% of the guideway in tunnel. With three exceptions (the major one being Washington) all urban rail systems in the United States, most notably Chicago, have far less mileage in tunnels.

6. What is the volume at which its construction cost becomes commensurate with recent investment decisions?

Half of a sample of 20 recent fixed guideway construction projects involved a capital investment of up to $1,250 per weekday passenger-mile in 1977 prices; three-quarters an investmentof up to $1,800. San Francisco's BART and Washington's WMATA were near the median. Atlanta's rapid transit Phase I, the Archer Avenue subway to Queens, New York, and the Airtrans peoplemover at the Dallas-Ft. Worth Airport were near the 75th percentile.

The investment per weekday passenger-mile gives an indication of the value which public decision makers have implicitly placed on providing service by fixed guideways. At the conception of most of the 20 projects reviewed, federal funding was more limited than it later became, so that a major local commitment was usually involved.

Prorated over an amortization period of 45 to 75 years (depending on the type of construction) and assuming a 3% or 4% constant-dollar interest rate, the median investment costs 15¢ to 22¢ per passenger-mile and the 75th percentile investment 22¢ to 31¢ in 1977 prices....

Past political decisions notwithstanding: are the savings in land, energy, labor and passenger time that fixed guideways provide commensurate with capital expenditures in the 15¢ to 31¢ per passenger-mile range?

The money values that one can place on these four "hard" savings are somewhat arbitrary. Making conservative assumptions, one can show that, at the threshold volume of existing rapid transit service, an expenditure of 15¢ per passenger-mile can be paid for about 35% from savings in time (reflecting trade-offs passengers now make between travel time and travel cost), 35% from savings in labor, 25% from savings in parking charges as a proxy for land savings, and 5% from savings in energy.

Making more liberal assumptions about the full economic value of energy conservation and about the proportion of auto travel diverted to a rail line, and assuming a travel volume at twice the threshold of existing service, a capital expenditure of roughly 22¢ per passenger-mile would be paid for 45% from reduced parking charges and 30% from reduced energy use, with the remaining 25% equally split between savings in labor and savings in time.

The important point is that between 5% and 30% of the investment in a rail transit line can be recouped by direct savings in energy; between 12% and 35% by savings in labor; and between 25% and 45% by savings in parking charges as a proxy for land savings, with the remainder attributable to time savings. Long-term concern with resources, land use, and urban form are not traded in the market place. The decisions about the worth of these long-term benefits must be essentially political.

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Total Miles of Line of Grade-Separated Rail Transit in the United States, 1870-1980

RAPID TRANSIT: Length of line or first track, as of year end (miles)

	1880	1900	1920	1940	1960	1970	1975	1980
New York .... (1867)	32.2	64.6	216.1	277.0	265.0	265.4	258.9	258.0
Chicago .... (1892)		41.4	71.1	82.4	67.5	89.4	89.4	89.4
Boston.................... (1901)			16.1	19.5	24.3	24.3	32.9	36.7
Philadelphia............. (1907)			7.0	24.9	26.5	37.4	38.6	38.6
Cleveland* .... (1955)					15.2	19.3	19.3	19.3
San Francisco .... (1972)							71.0	71.0
Washington............. (1976)								37.2
Atlanta.................... (1979)								11.8
Baltimore................. (1983)								
Miami...................... (1984)								
Subtotal.........................	**32.2**	**106.0**	**310.3**	**403.8**	**398.5**	**435.8**	**510.1**	**562.0**

LIGHT RAIL: Portions of line with fully grade-separated right-of-way, as of year end (miles)

	1880	1900	1920	1940	1960	1970	1975	1980
Boston.................... (1897)		1.5	5.7	4.5	14.7	14.7	14.7	14.7
Philadelphia............. (1905)			18.0	18.5	16.1	16.1	16.1	16.1
Cleveland................. (1920)			4.5	6.0	3.5	3.5	3.5	3.5
Rochester .... (1927-56)				10.0				
Newark .... (1935)				4.3	4.3	4.3	4.3	4.3
San Francisco .... (1980)								6.2
Buffalo.................... (future 1.2 miles at grade, 6.4 miles total)								
San Diego............... (1981) 15.5 miles has no fully grade-separated right-of-way								
TOTAL, grade separated**	**32.2**	**107.5**	**338.5**	**447.0**	**437.1**	**474.4**	**548.7**	**606.8**

* The Cleveland RT system shares 2.5 miles of line with Light Rail.

** In addition, there are 1.2 miles of grade-separated Light Rail in Forth Worth; reserved right-of-way Light Rail lines totaled 53.1 miles in 1980, and street-running lines, 100.5 miles.

Source: *Urban Rail in America*

rail access. To a lesser degree, this effect can also be observed in Baltimore and Pittsburgh, which did not have major rail systems in the early 1970s, but which did, historically, develop above average densities in the core.

"Density acts as a barrier to auto use by reducing speeds and increasing the costs of owning and operating an auto. In addition, auto ownership in urban cores is more sensitive to income than that in suburban areas, where auto ownership is more necessary even among low-income households.

"Not only are fewer autos owned in higher-density areas, but those that are owned are driven less. A recent study suggests that autos owned by lower-income households in urban core areas are driven about 25% less than those in suburban and about 20% less than those in rural areas. Those owned by middle- and upper-income households are driven about 20% less in urban areas than in suburban ones, and 30% to 45% less in urban areas than in rural ones."

All of this adds up, says RPA, to a big plus argument for rail: In the six "rail regions," not only were 11.6 billion vehicle-miles of auto travel diverted to rail annually; the six regions also had indirect savings amounting to 47.1 billion vehicle miles. That, points out RPA, "is more than all the annual auto travel in the Los Angeles region."

• **Great expectations scaled down.** While the RPA study's findings on the cost-effectiveness of urban rail may surprise and trouble Washington, those findings represent a substantial scaling down of the grand (and sometimes grandiose) plans of cities just a few years ago. It was, in fact, to get an independent agency's view of actual needs that UMTA commissioned the study in the first place..

"There were exaggerated expectations in the late '60s and a lot of high flown plans that really did not make any sense, such as 80 miles of subway in St. Louis," Pushkarev recalled in the interview with *Railway Age*. "Those plans added up to something like 2,200 miles of rail rapid transit by 1990. Then the pendulum swung the other way, and President Carter said zero miles. What we are now trying to say is that the truth lies somwhere between these two numbers."

Pushkarev is not surprised at UMTA's cool-to-lukewarm reaction to RPA's fundings. "They of course are trying to avoid the political issue of how do you square the fact that rail systems make sense with the fact that they don't want to spend any money," he says. "And there has, of course, always been an anti-rail element within DOT."

"The importance and the benefits of urban rail are underestimated in the United States," he told the Washington news conference, and he made these points:

—Subways,streetcars and commuter rail in 1980 produced 17.4 billion passenger-miles of travel in the U.S.—three and a half times as much as Amtrak and nearly as much as all city buses put together.

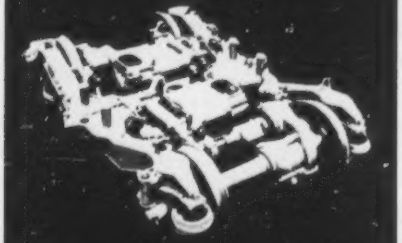
—In six major urban areas, peak hour travel by rail equals that on freeways. Cities with rail transit have at least as much per capita bus travel as other major cities, so rail service decreases driving, not bus riding.

—In 1980, the eight downtowns served by rapid transit and the two served by streetcar housed one-third of the *Fortune* 500 industrial corporation headquarters and two-thirds of the 300 largest non-industrial corporations.

—Worldwide, rapid transit mileage doubled in the 1960-1980 period, but the U.S. lagged.

It's time, believes Pushkarev, for the pendulum to start to swing the other way. If it does, Pushkarev and his associates at RPA can be credited with giving it a vigorous shove in the right direction. ■

Katja: I did not count cities in 2nd section of table that appeared in 1st.



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Computer to computer:

Speeding up waybill data exchange

The switch to electronic data interchange for transmission of waybill information is gaining momentum. It saves time and narrows the margin for error.

"Every time we put another railroad on line it's like money in the bank." That is how one Conrail official sees the benefits from the rapid introduction of Electronic Data Interchange (EDI) over the past several years. Railroads all across the U.S. are abandoning the time-consuming and error-prone shuffle of paper waybills and replacing it with instantaneous transmission of waybill data via computer to computer messages.

Where EDI has been accepted, freight-laden cars no longer have to wait for their marching orders to catch up with them. Instead, clerks know what to expect hours or days in advance, and car scheduling can be used to streamline operations. Today over 50% of all U.S. loaded freight cars move under EDI—and industry sources expect that by the end of this year 85% of that traffic will be covered by EDI. Major railroads are generally enthusiastic about the results and, as the accompanying table shows, most plan to send waybill data via EDI.

Railroad	% of U.S. waybills originated	Using EDI
ATSF	3.5	Today
BAR	—	Today
BLE	1.0	Planned
B&M	—	Planned
BN	8.4	Today
CN	—	Planned
C&NW	3.8	Planned
Chessie	10.6	Planned
CP	—	Planned
CR	10.2	Today
D&RGW	.9	Today
DTI	.9	Planned
EJE	.9	Planned
Family Lines	12.7	Today
GTW	1.5	Planned
ICG	4.4	Planned
KCS	1.0	Today
MILW	2.1	Planned
MP	5.3	Today
NW	6.1	Planned
PLE	.6	Planned
RFP	—	Planned
Soo	—	Planned
Sou	5.9	Today
SP	6.6	Today
UP	4.8	Planned
WP	—	Today
	91.2	

"EDI is the modern way to format messages," says Edward A. Guilbret, president, Transportation Data Coordinating Committee (TDCC). TDCC was formed in 1969 with the concept for EDI, though it was apparent that such a major change in industry communications could not come easily.

"Just describing the commodities was a difficult task," says Guilbret.

After nearly a decade of tests, three railroads started a demonstration project that proved EDI would not only work, but would deliver the anticipated cost savings.

- **Eliminating errors.** EDI has a number of applications inside and out of the railroad industry. For railroads, though, its most important use is in the transmission of waybill data. It speeds car movements, accelerates cash flow, and reduces error. It is the latter benefit that might be the biggest. Michael D. Sims, vice president, information systems, Conrail, estimates that one out of four paper waybills contains erroneous information. "Once you start producing waybills with a computer," he says, "you have predetermined logic that eliminates a lot of those errors."

The problem with paper waybills is that they have to be reproduced at least as many times as there are railroads in a given move. Each time a car moves from one railroad to another a clerk must retype the data from the delivering carrier's waybill onto another form for the receiving carrier. In such a chain mistakes are bound to happen.

With EDI, though, the originating carrier makes up the waybill and transmits it to Railinc in Washington, D.C., where there is a central switchboard for EDI. The Railinc computer looks at incoming waybills and transmits them to all the connecting carriers that can receive the information. Rather than taking days to move the data, this process is nearly instantaneous. And it transmits the waybills without making errors.

The use of EDI also reduces the chances of error in the original waybill because a series of logic checks screens out a number of common errors.

It is through the use of this hub at Railinc that EDI is able to function for railroads. Railinc was set up this year to assume the functions that had been conducted in-house at AAR through its Management Systems Department.

- **"An electronic window."** AAR decided that a for profit company could better handle the growing responsibilities of its data processing and communications services, as well as Train II (TeleRail Automated Information Network). Henry W. Meetze, former AAR vice president in charge of MSD, was named president of Railinc. Meetze has been able to trace the growth of EDI transmissions through MSD and Railinc, watching the number of messages burgeon over the past 18 months from 4,000 a month to over 53,000. "We have become an electronic window between railroads and other industries," says Meetze.

The development has been made possible by a series of policy decisions at AAR. In 1978 the organization first began using its national communications system to electronically switch messages between railroads. Shippers were brought into the network in 1980. With the formation of Railinc Meetze is able to fully develop the potential of EDI, and he looks toward the future with anticipation. "We are in an open market situation."

To take full advantage of that position, Railinc recently decided to allow the transaction of any business related data between two parties over its network. The only condition is that one of those parties must be a railroad.

Besides allowing Meetze to sell his services to a wider audience, these policies mean that railroads can now take advantage of electronic data interchange wherever it will be beneficial.

The Interstate Commerce Commission recently decided to allow waybills and loss and damage claims to move via EDI rather than paper. Family Lines has petitioned the ICC to allow EDI transmission of bills of lading, as well.

Railroads are moving into position, then, to sweep away a great flood of paper that has burdened the movement of freight trains for over 100 years. TDCC's Guilbret says EDI is a whole new way of communicating that is a big step beyond writing. "If at any point you require paper there is an edit for it," he says, "but EDI is not designed to automate paper work."

- **Co-existence.** EDI has a language and format all its own, but importantly it can exist along with a railroad's in house communication network.

"Internally each company has many differences that you don't try to standardize," explains Guilbret. What you do is "standardize in between companies." EDI offers a standard method of communication between railroad, shipper, and others that allows everyone to meet and communicate on common ground.

Essentially, the typical EDI message is composed of individual data elements such as the name of a city, dollar amount, or transaction number. These are put into data segments that are separated by an asterisk. The segments are put into a transaction set, such as a waybill.

These messages can be transmitted and received by computers or terminals and, perhaps soon, even by simple word processors with the ability to communicate. By opening the EDI network to a large group, railroads hope to eventually send over 90% of their waybills via EDI.

With Guilbret, Meetze, and others predicting that 85% of all U.S. waybills will be transmitted electronically by year's end, the benefits of EDI are becoming apparent to most railroads. Already, in the grocery industry, TDCC has found that simply by moving 50% of that industry's volume under EDI there are savings of $120 million annually.

- **Reason for excitement.** No estimates are available of the potential savings within railroading, but there is reason to be excited, says R.C. Shamberger, chief, rail operations division, Federal Railroad Administration. Shamberger has been following and promoting the development of EDI for a number of years, and FRA has backed some of the research into EDI. Now, under the new Administration's drive to take government out of the private sector, FRA is withdrawing from active support of EDI research. Rather than being upset by this, Shamberger is buoyed by the "yield of the program that has been, in my view, beyond our anticipations." Further government involvement is unnecessary. Says Shamberger, "We won the game."

The basic thrust of EDI should be, he says, to take data and turn it into information. That information, in the right hands, can add to the knowledge of railroaders and shippers, and through that knowledge those people can become more insightful about their work. "That is what improves the quality of work life," says Shamberger.

Through EDI car scheduling can become more accurate, and equipment utilization can be improved. This will make railroads more attractive to shippers, because "the railroad is actually part of the production line," says Shamberger. "The truckers have viewed it this way for years."

A Missouri Pacific pilot program has shown that transmission of bills to shippers by EDI can speed payment by two days.

The potential benefits of EDI, though, go beyond even transmitting waybills or loss and damage claims electronically. Using waybill information, railroads can know how traffic will be flowing over their routes two or more days in advance. "All of a sudden," says Shamberger, "you've got interline car scheduling."

Conrail, one of the leaders in EDI development, is already taking partial advantage of this capability. Says Sims, "When we know a car will be unloaded within two days, we take the information and run it against our car strategy. If we find a use for that car then the computer assigns it a destination. If we can't find a use for it we tell the car management people that the car is available. They decide if they want to use the car or send it home." Sims estimates that this process saves Conrail a couple of days worth of per diem charges on the average car and keeps many cars from going into inventory.

"The thing we would like to see is for more railroads to find uses for the waybill data other than for transportation purposes."

- **Expedited cash flow.** Another pioneer in the use of EDI has been Missouri Pacific and its vice president, information and control systems, G.S. Sines. Besides car scheduling, one of the spinoff benefits Sines sees from EDI is expedited cash flow. As soon as the delivery of a freight car is complete a bill can be transmitted to a shipper via EDI. This is being done now on a limited basis. MP has a pilot program with Dow Chemical and is speeding up its cash flow by two to four days. "You can pick up a good chunk of interest," says Sines.

But what about payment? Why not transfer funds electronically, too? Sines agrees that it's a good idea, but for obvious reasons shippers are not so quick to agree. Sines says that there is some discussion now with shippers about this, but "it's not in the hard negotiating stage yet." He suggests that electronic funds transfer could be included in a contract as part of a total service package.

Railroads emphasize that EDI does not eliminate the need for clerks—it just makes their jobs easier to perform.

By 1985 MP expects to send nearly 90% of its interline traffic under EDI waybills. Sines says that EDI allows MP to move a load as much as a full day ahead of time on weekdays and on weekends the railroad can pick up as much as 48-72 hours by moving a car under EDI.

Conrail, too, is moving a growing portion of its waybills through computers rather than ink. Right now about 33% of its terminating traffic is moving under EDI, though only 10% of its originating traffic enjoys EDI. The reason for that difference is that not all of the railroads Conrail interchanges with use EDI. Sims expects that the percentage will jump when Norfolk & Western adopts EDI this year.

Sims points out that certain traffic resists some of EDI's benefits. Intermodal business is one such example. With the wide array of special plans, rates, and contracts for intermodal, it is difficult to automatically generate a freight bill from waybill information. TOFC/COFC can easily move under an EDI waybill, but it is difficult to quickly produce an electronic freight bill from that information.

- **Labor's reaction.** Another problem railroads face as they make wider use of EDI is the reaction of organized labor. There have been reports that the Brotherhood of Railway and Airline Clerks (BRAC) has resisted the introduction of EDI on certain railroads. One railroad official points out that part of the benefit from EDI comes out of the reduction in time it takes to process interline car movements. Where a clerk might have had to enter 120-300 characters to duplicate a waybill, he now has to punch only 20-30 characters as he pulls up the bill for an incoming car and checks the data. This is where the chance for error is reduced, of course, but it also increases the union's apprehension over possible job losses due to EDI.

Conrail's Sims says, "We are trying to do this [phase in EDI] in such a manner that there will be a definite role for BRAC employees and so that we will not obviate the need for our employees."

With the transition to EDI transmission of waybills well under way, some problems are bound to come up. It is apparent, though, that the advantages are so significant that there is little to keep railroads from adopting EDI. And for an industry that sometimes gets stuck with the label "old fashioned," the leading role that railroads have taken in the development of EDI has to show some people that railroading has indeed emerged from the 19th century. When it comes to communications, TDCC's Guilbret says railroads are "progressive and aggressive." ■

Market

CARLOADINGS

Loadings of revenue freight in the week ended May 22 totaled 387,394 cars, according to the Association of American Railroads. This was a decrease of 10,020 cars, or 2.5%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended May 22 are estimated at 16.7 billion, a decrease of 2.8% below the corresponding week of 1981. The 1981 week included the eighth week of the coal miners' strike.

REVENUES FREIGHT CARLOADINGS

Commodity	**May 22 week**	**May 15 week**
Grain	25,223	24,676
Other farm products	4,573	4,433
Metallic ores	23,643	21,192
Coal	120,027	119,236
Crushed stone, gravel & sand	10,337	10,164
Nonmetallic minerals	8,987	9,976
Grain mill products	11,660	11,744
Food & kindred products	13,947	13,762
Primary forest products	15,281	15,188
Lumber & wood products (except furniture)	6,410	6,010
Pulp, paper & allied products	16,657	16,415
Chemicals & allied products	22,123	23,657
Petroleum products	4,517	4,675
Stone, clay & glass products	10,172	10,303
Coke	4,532	4,596
Metals & products	9,745	9,744
Motor vehicles & equipment	18,093	16,964
Waste & scrap materials	8,622	8,667
Forwarder & shipper assn. traffic	8,027	8,433
All other carloads	44,547	41,952
LCL traffic	271	238
Total Cars Loaded	**387,394**	**382,025**
Cumulative total,	1982	1981
21 weeks	**7,865,552**	**8,707,447**
Estimated revenue ton-miles (billions), 21 weeks	**338.5**	**370.9**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended May 15, totaled 35,299 cars (3.5% above the corresponding 1981 week) and 65,593 trailers or containers (up 8.9% from 1981). Cumulative volume for the first 20 weeks of 1982 was 694,473 (up 8.3% from 1981) and 1,241,470 trailers or containers (up 6.5% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended May 7 totaled 5.2 million tons (up 0.1% from 1981). Cars loaded totaled 70,692 (down 5.4% from 1981). Cumulative loadings for 1982 were 80.7 million tons (down 8.7% from 1981).

- *CP Rail.*—Will install a $1.8-million Farinon DM-18 digital radio microwave system to provide trackside communications between Revelstoke and Glacier, B.C., 40 miles.

- *Metropolitan Atlanta Rapid Transit Authority.*—Placed a $3.8-million order with BSC Track Products, a British Steel subsidiary, for the supply of both running and contact rail scheduled for installation in 1983.

- *New York City Transit Authority.*—Awarded a $5.9-million contract to Parsons Brinckerhoff-Gibbs & Hill for review, inspection and testing of 325 R-62 IRT cars ordered from Kawasaki Heavy Industries. Parsons-Brinckerhoff will have its own staff at the Kawasaki main plant in Kobi, Japan, consisting of a chief inspector, a resident engineer, supervisors and inspectors. The staff will review designs, observe tests and inspect components and sub-assembly units.

- *Southern Pacific.*—Applied to the FRA for authority to install a traffic control system between Fauna, Tex., and Beaumont, 69 miles, and between Beaumont and Echo, La., 26 miles.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	April		**March**	**Four months**	
	1982	**1981**	**1982**	**1982**	**1981**
Built new by carbuilders	2,265	3,792	2,032	7,656	17,975
Build new in RR shops	178	453	215	791	1,477
Built new—total	2,443	4,245	2,247	8,447	19,452
Rebuilt	136	125	148	518	446
TOTAL DELIVERED	**2,579**	**4,370**	**2,395**	**8,965**	**19,898**
Locomotives (new and rebuilt)	29	70	34	157	258

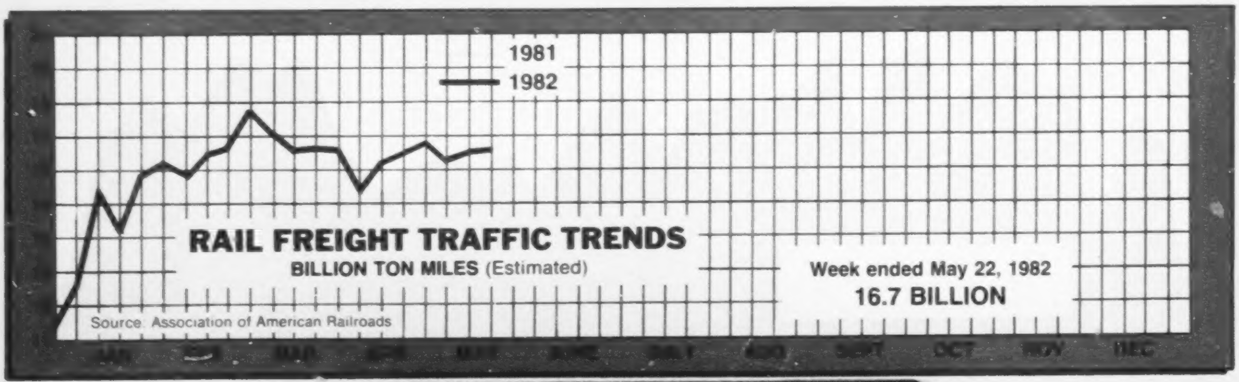
ORDERED

To be built new by carbuilders	539	1,737	1,485	3,592	7,602
To be built new in RR shops	0	25	0	25	
To be built new—total	539	1,762	1,485	3,592	7,627
To be rebuilt	0	0	0	0	600
TOTAL ORDERED	**539**	**1,762**	**1,485**	**3,592**	**8,227**

ON ORDER AND UNDELIVERED

	May 1		**April 1**	**Average Backlog**	
	1982	**1981**	**1982**	**1982**	**1981**
To be built new by carbuilders	9,685	35,920	11,546	11,670	39,849
To be built new in RR shops	875	3,052	1,053	1,175	3,672
To be built new—total	10,560	38,972	12,599	12,845	43,521
To be rebuilt	382	154	518	589	203
TOTAL ON ORDER	**10,942***	**39,126**	**13,117**	**13,434**	**43,724**
Locomotives (new and rebuilt)	188	341	185	207	437

*Due to revisions and cancellations of some orders, the May 1, 1982 backlog has been reduced by 135 cars.



RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

Source: Association of American Railroads

Week ended May 22, 1982

16.7 BILLION

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ICG forces keep busy at Centralia and Paducah

June 28, 1982

RAILWAY AGE

Grain by unit train

RG03722494MAR63 2G22900 2F 713
ANDREA SCHWARTZ
CONGRESSIONAL INFO SVC
4520 EAST WEST HWY 800
BETHESDA MD 20814

RAILWAY AGE

June 21, 1982

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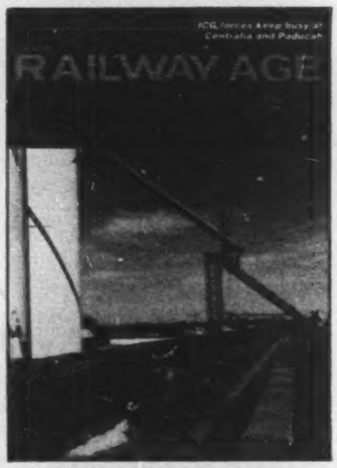

Cover: Union Pacific grain train loading at Plainville, Kan. elevator. *Page 17.*

17 Grain by unit train
Especially well suited to movement of grain for export, unit trains give the shipper faster service and the carrier greatly improved car utilization.

20 An Iowa co-op makes history.
The first annual grain-car teardown took place recently near Des Moines, sponsored by AGRI Industries, an Iowa cooperative with its own fleet of 3,162 cars.

23 ICG shops: Centralia, Paducah keep rolling
Centralia is building 1,500 hopper cars. Paducah, meanwhile, is midway through a program converting old hulks into 2,000-hp non-turbocharged road locomotives.

37 Equipment testing: A major role for Miner
Test skills developed by Miner for its own bread and butter line of draft gears are available to other companies—and about 50% of tests are now done on contract.

42 MoPac computer controls 26,000-item inventory
The railroad's Purchasing and Materials Management Department, a long-time computer user, finds the system increasingly valuable now that it's on a real-time basis.

51 Shippers on deregulation: The jury's still out
Without denying that the Staggers Act has brought about many service and rate improvements, some shippers still yearn for the "protection" of the old days.

Page 23

Page 37

NEWS

4 Short and Significant
8 Amtrak board picks Claytor
8 Transit time cut in ship-rail test
8 $800 billion for highways?
10 Coal's future: "Strong, bright"
10 NW plans new intermodal facility
12 Lewis to push five-cent fuel tax
12 MIT schedules transport seminars
13 Track Train Dynamics Newsletter
59 The Railroad Market

COMMENT

3 Inside
10 Watching Washington
12 Lines on Labor

DEPARTMENTS

55 Letters
56 100 Years Ago
58 Advertising Sales
58 People in the News
58 Suppliers
60 Classified Advertising
61 Professional Cards
61 Guide to Advertisers
62 Products Report
62 New Literature

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Market

CARLOADINGS

Loadings of revenue freight in the week ended June 5 totaled 327,648 cars, according to the Association of American Railroads. This was a decrease of 64,838 cars, or 16.5%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended June 5 are estimated at 14.3 billion, a decrease of 15.4% below the corresponding week of 1981. The 1982 week included the Memorial Day holiday, while the 1981 week was the tenth week of the coal miners' strike

REVENUE FREIGHT CARLOADINGS

	June 5 week	May 29 week
Grain	19,266	22,106
Other farm products	4,076	4,648
Metallic ores	20,693	22,529
Coal	101,491	114,796
Crushed stone, gravel & sand	8,202	9,807
Nonmetallic minerals	7,388	9,881
Grain mill products	10,186	11,494
Food & kindred products	11,828	14,047
Primary forest products	12,963	14,826
Lumber & wood products (except furniture)	5,105	6,891
Pulp, paper & allied products	14,937	17,048
Chemicals & allied products	18,483	22,919
Petroleum products	3,891	4,744
Stone, clay & glass products	8,893	10,051
Coke	4,838	4,488
Metals & products	7,918	10,153
Motor vehicles & equipment	14,349	17,078
Waste & scrap materials	6,647	8,711
Forwarder & shipper assn. traffic	7,019	9,047
All other carloads	39,233	45,692
LCL traffic	252	300
Total Cars Loaded	**327,648**	**381,256**
Cumulative total,	1982	1981
23 weeks	**8,575,401**	**9,461,603**
Estimated revenue ton-miles (billions), 23 weeks	**369.2**	**403.5**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended May 29 totaled 38,261 cars (26.7% above the corresponding holiday week of 1981) and 67,373 trailers or containers (up 25.2% from 1981). Cumulative volume for the first 22 weeks of 1982 is 777,544 cars (up 8.7% from 1981) and 1,390,516 trailers or containers (up 7.2% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended May 21 totaled 4.7 million metric tonnes (up 16.7% from 1981). Cars loaded totaled 71,182 (up 9.2% from last year). Cumulative loadings for 1982 were 82.6 million metric tonnes (down 7.3% from 1981).

- *Amtrak.*—Ordered three wheel truing machines from Abex/Stanray for delivery in 1983. The manufacturer says this is the largest such order ever placed in North America.

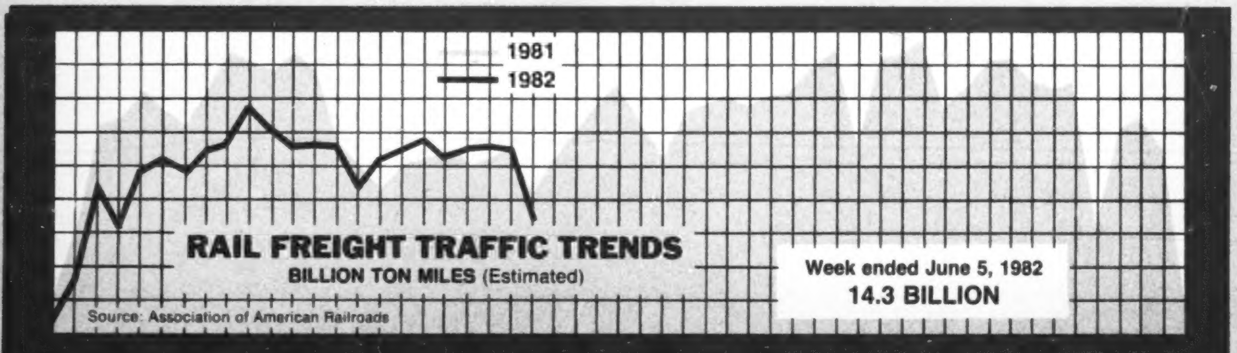
- *Construction Development Corp. of the Philippines.*—Awarded a $3.5-million contract to Filipinas Dravo and Dravo Utility Constructors, Inc., a subsidiary of Dravo Corp. of Pittsburgh, to provide construction management services for the Phase I 9½-mile segment of the Manila light rail transit system.

- *CP Rail.*—Is spending $16.5 million to expand and modernize its diesel locomotive shop facilities in Winnipeg. Scheduled for completion in November 1983, the project will increase Winnipeg's diesel servicing capacity from 200 to 450 units.

- *New York City Transit Authority.*—Awarded a $5.3-million contract to F. Garofalo Electric Co. of Whitestone, N.Y., for installation of a communications system linking the TA's Brooklyn headquarters with train dispatchers and towermen on all subway lines.

- *Northeast Corridor Improvement Project.*—Intelect, Inc., of Hawaii will provide an $800,000 microprocessor-controlled voice communications system as part of an overall upgrading of signal and traffic control systems for which Chrysler's Huntsville Electronics Division has the prime contract (*RA*, Sept. 14, 1981, p. 12).

- *Staten Island Rapid Transit Operating Authority.*—Gibbs & Hill, Inc., has been selected to prepare designs for a $25-million service-improvement program that calls for modernization of power substations and the power distribution system; rehabilitation and extension of platforms at 12 stations; replacement of interlocking signals at the Tottenville terminal; and installation of new machine tools at the Clifton maintenance shop.



RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

Source: Association of American Railroads

Week ended June 5, 1982
14.3 BILLION

-1 C8400-1 7/22/82

[illegible] 12, 1982

RAILWAY AGE

Transit: Living on a reduced income

RG03722494MAR63 20229002F713 G
ANDREA SCHWARTZ
CONGRESSIONAL INFO SVC *
4520 EAST WEST HWY 800 *
BETHESDA MD 20814

Midyear report:
How strong an upturn?

Meet Milly the robot

C&NW's snow fighters

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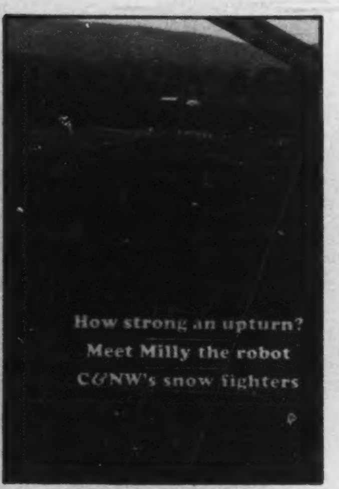
RAILWAY AGE

July 12, 1982

FEATURES



Cover: Conrail freight was photographed by Roy Blanchard near Harrisburg, Pa. *Page 15.*

15 **Midyear report: How strong an upturn?**
Railroads expect recovery to be slow and erratic—but the industry entered this recession in such strong shape that it could still show a modest '82 profit.

21 **Meet Milly-the-robot**
Material-handling Milly and an apprentice welding robot, now installed at UP's Albina Shops, are the first of 11 robots the railroad plans to acquire.

24 **AGVS: Automated material flow**
Portec has been licensed to build and market a sophisticated automatic guided vehicle system that has already won wide acceptance in Europe.

26 **C&NW's snow fighters plan now for winter**
Hot-weather planning of cold-weather strategy helps North Western keep its yards and main lines open when others are choked with snow.

29 **Transit: Learning to live on reduce income**
MARTA, facing both federal funding cuts and lower sales-tax revenues, is moving on several innovative fronts as it strives to make ends meet.

34 **Needed: "Innovative mindset and multimodal perspective"**
Deregulation, says ICG'S Harry Bruce, can produce profitable innovation—or ruinous rate-cutting. He hopes the former will prevail.

NEWS

4 **Short and Significant**
7 **RoadRailer passes an important test**
7 **U.S. suppliers eye the Indian market**
10 **BN negotiates coal contracts**
10 **TTC computerizes announcements**
10 **Soo Line gets MN&S**
13 **SEPTA faces financial crisis**
13 **What ails the truckers?**
13 **Lewis tries to reassure BRAC**
42 **The Railroad Market**

Page 21

COMMENT

3 **Inside**
8 **Watching Washington**
12 **Lines on Labor**

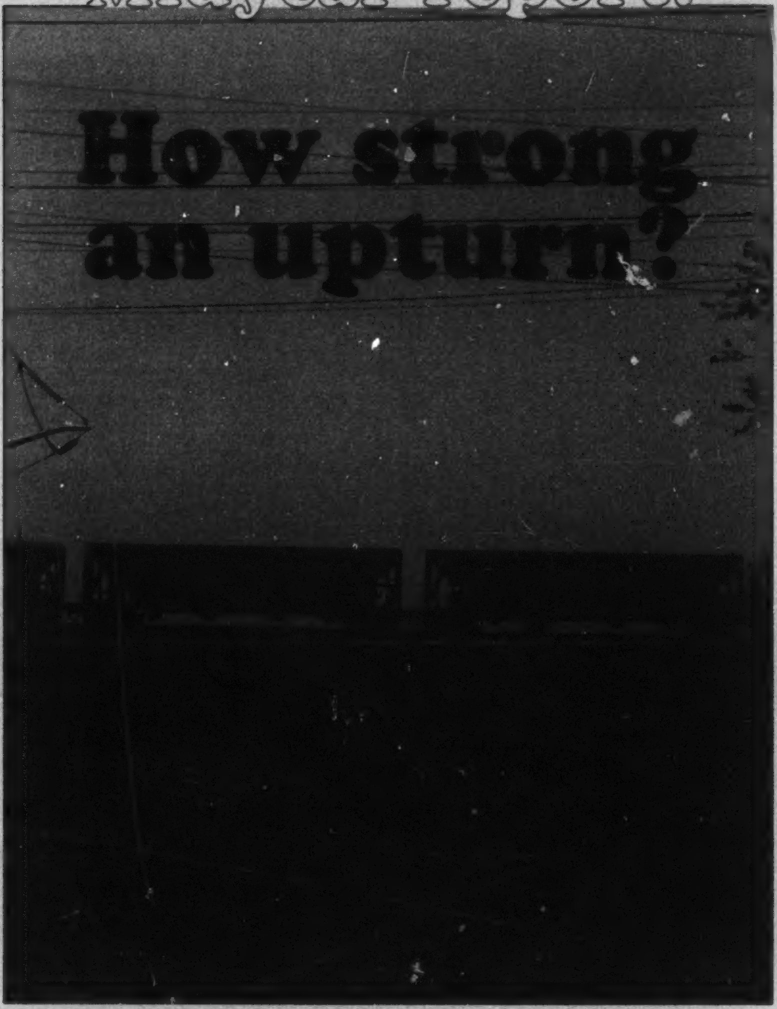
Page 29

DEPARTMENTS

36 **Letters**
37 **100 Years Ago**
38 **Revenues & Expenses**
39 **People in the News**
40 **Associations**
40 **Suppliers**
40 **Industrial Traffic**
40 **Advertising Sales**
42 **Carloadings**
45 **Professional Cards**
46 **Classified Advertising**
47 **Guide to Advertisers**
48 **Products Report**
48 **New Literature**

Midyear report:

How strong an upturn?



Although the recession is officially over, railroads see no sudden or sustained traffic upturn. But they have weathered the recession well and could even end up the year in the black.

By LUTHER S. MILLER, Editor

The question at midyear is "What's ahead?" The answer, for railroads, depends on how far ahead you are looking.

Long-term, railroad prospects have never been brighter. Business writers who just a few years ago were composing railroading's obituary notices are today rushing into print with stories describing a dramatic turnaround that has transformed a dying industry into a growth industry.

But you don't pay today's bills with tomorrow's freight receipts, and it is short-term indicators that railroaders are anxiously scanning at midyear '82. Those indicators are starting to look, if not good, then certainly better than they have looked in many months. On July 1, these encouraging words were being heard from Washington:

—The government's index of leading economic indicators rose 3/10 of 1% in May, following increases of 1.3% in April and 2/10 of 1% in March. Three consecutive months of improvement were viewed as conclusive evidence that a recovery, of sorts, was under way.

—Government economists announced that they expected the gross national product, when adjusted for inflation, to be up 9/10 of 1% in the second quarter. That would be the first rise in GNP since the third quarter of 1981.

—Orders for new manufactured goods increased 1.5% in May, and shipments rose 2.6%—the largest one-month gain since October 1980.

—New construction spending rose 1.3% in May, the third straight monthly gain.

• **The railroad outlook.** So recovery from the Great Recession of '81-'82 is officially under way. The next questions are, "How strong a recovery?" and "How long a recovery?" The answer to the first is "not very." The answer to the second is iffy.

Some economists feel that the initial recovery may be of short duration, fueled only briefly by the need to replenish depleted inventories and by the 10% tax cut that became effective July 1. Others see a slow, steady recovery that will gradually gain momentum. But no one is forecasting any economic miracles for the rest of this year or the early part of '83.

"Indications are that third-quarter traffic will clearly be below comparable 1981 levels, with the gap narrowing in the fourth quarter—in part because the economy may pick up and in part because the fourth quarter was the worst of 1981," says Richard E. Briggs, executive vice president of the Association of American Railroads. "I don't think we are going to see any pickup in coal; in fact, it may be a little more sluggish than a year ago—the figures will look bad for a while because we are running against last year's post-strike catchup. The only thing I can see on the horizon that could really help is if all of a sudden export grain starts to move. The fact that we aren't going to have any major rate increases—certainly no general ones—for the rest of the year bodes well, I think, but it's going to be a very competitive climate, with rate reductions predominating in all areas of transportation."

Harry J. Bruce, senior vice president-marketing, Illinois Central Gulf, is similarly cautious. "There appears to have been a bottoming out of the recession, but I don't see any dramatic upturn this year and the outlook is rather bland and bleak for 1983," Bruce observed the day the government released its "end of the recession" economic indicators. Like the AAR's Briggs, Bruce sees a period of rate-cutting ahead. He fears, in fact, a rate war that could have serious consequences when traffic comes back and rates will have to be restored to normal levels.

"The Staggers Act," warns ICG's marketing chief, "gave us a tremendous amount of pricing freedom, but it also gave us the freedom to make mistakes. Some railroads have established rates that have taken business out of boxcars and put it onto flatcars. Now they're having to offer incentive rates to reload those empty boxcars."

With traffic levels low, Bruce observes, the competitive pressures are worsening. "It's common knowledge that some barge

As carloadings sag...

	Jan. 1 to June 19, 1982	% change from 1981
Grain	620,202	- 8.4%
Farm products ex. grain	106,076	+ 3.8%
Metallic ores	486,145	-35.1%
Coal	2,862,609	+21.6%*
Crushed stone, gravel & sand	224,205	-26.9%
Nonmetallic minerals	253,647	-25.4%
Grain mill products	310,568	-17.0%
Food & kindred products	344,505	-12.6%
Primary forest products	388,778	-18.2%
Lumber & wood products ex. furniture	146,236	-32.6%
Pulp, paper & allied products	417,879	-16.6%
Chemicals & allied products	578,437	-16.4%
Petroleum products	119,341	-10.7%
Stone, clay & glass products	247,084	-30.0%
Coke	122,721	-24.8%
Metals & products ex. coke	267,194	-35.9%
Motor vehicles & equipment	360,068	-17.9%
Waste & scrap materials	215,976	-33.0%
Forwarder & shipper assc. traffic	215,474	-11.4%
All other carloads	1,029,457	- 2.3%
LCL traffic (cars)	5,362	-14.1%
Total cars loaded	**9,321,966**	**- 9.6%**
Piggyback**		
Cars loaded	848,330	+ 8.1%
Trailers loaded	1,510,493	+ 8.3%

*Increases in coal carloadings reflect effects of last year's UMW strike.
**24 weeks ended June 12, 1982

...the red ink spreads

First-quarter operating ratios

	1982	1981
Atchison, Topeka & Santa Fe	97.45	91.97
Baltimore & Ohio	103.71	93.11
Bessemer & Lake Erie	119.99	74.92
Boston & Maine	102.35	98.00
Burlington Northern	94.01	87.76
Chesapeake & Ohio	90.00	87.54
Chicago & North Western	109.51	94.48
Chicago, Milwaukee, St. Paul & Pacific	109.38	107.49
Clinchfield	80.96	72.36
Conrail	101.98	104.85
Delaware & Hudson	106.35	111.84
Denver & Rio Grande Western	91.00	84.23
Detroit, Toledo & Ironton	124.62	93.25
Duluth, Missabe & Iron Range	156.77	126.89
Elgin, Joliet & Eastern	77.19	77.25
Florida East Coast	86.37	87.06
Grand Trunk Western	101.06	96.00
Illinois Central Gulf	107.44	96.26
Kansas City Southern	84.44	83.79
Long Island	114.26	114.72
Louisville & Nashville	92.95	90.82
Missouri-Kansas-Texas	92.86	90.49
Missouri Pacific	87.12	86.19
Norfolk & Western	73.89	73.17
Pittsburgh & Lake Erie	111.78	94.55
St. Louis Southwestern	84.01	87.55
Seaboard Coast Line	94.72	89.06
Soo Line	88.63	78.21
Southern	83.91	78.55
Southern Pacific	105.35	98.86
Union Pacific	88.01	82.22
Western Maryland	75.76	87.32
Western Pacific	103.93	94.70

lines are selling transportation at below cost," he says.

Bruce's comments were echoed in interviews *Railway Age* conducted with major shippers, most of whom asked not to be quoted by name. A big grain shipper said: "Barge capacity is so big now and the prices are so low that it has been an impact on railroads. A lot of grain that would normally go all the way to the Gulf by rail has been going over to the river. But we've also heard that some barge lines are going to lay up their fleets because their prices are so low they can't make their costs."

And a major Chicago-based shipper of paperboard observed, with respect to reduced motor carrier rates: "We know from operating our own trucks that some of the rates the highway carriers are charging are way below cost."

The reasons for this kind of rate-cutting become clear when you examine first-half traffic trends.

• **Some winners, many losers.** Up to June 19, revenue carloadings for the year as a whole were off 9.6% from year-ago levels, and ton-miles were down 8.6%. As the year progressed, the trend worsened. For the week ended June 19, loadings were down 14.7% and ton-miles were off 14.4% from the corresponding 1981 week.

During the year's first 25 weeks, 19 of the 21 principal commodity groups showed decreases from the comparable 1981 period. Among the big losers: metals and products (except coke), down 35.9%; lumber and wood products (except furniture), down 32.6%; crushed stone, gravel and sand, down 26.9%; nonmetallic minerals, down 25.4%.

Coal was a bright spot in the picture, and it was an important one—coal accounts for 30% of all railroad traffic and 18% of all freight revenues. Coal loadings for the first 25 weeks of the year ran 21.6% above 1981 levels—due partly to the coal miners' strike of '81 but also due to the high levels of export coal movements to eastern ports. Traffic now is beginning to soften. In the week ended June 15, coal loadings were up only 2.7% over the year-ago week—although, as the AAR's Briggs points out, this is partly because coal traffic now is being measured against the unusually heavy movements that were taking place in the post-strike period a year ago.

The only commodity except coal to show an increase over last year has been farm products (except grain), whose loadings are up 3.8%. Grain itself has been a disappointment. Grain loadings so far this year are down 8.4% from 1981 levels. But the grain elevators are overflowing, a new crop is being gathered in, and traffic is starting to show some improvement. In mid-June grain loadings were only 1.7% below comparable 1981 levels.

Piggyback loadings, a separate entry in the AAR's traffic reports, are running against the trend, with an overall 8% increase reported through June 12. Some view this as proof positive that the railroads' superior fuel efficiency is siphoning traffic from the highways.

Others, like ICG's Bruce, fear that much of the "improvement" comes from what will ultimately prove to be a self-defeating shift of freight from one type of railroad car to another.

- **A silver lining.** The clouds that now overhang the industry have, however, a silver lining, and it is this: If ever an industry could be said to be "ready" for a recession, it was the railroad industry. The downturn came at a time when railroad track and equipment were in the best shape they have been in for many decades, so expenditures could be deferred without damaging service levels. It also came at a time when the industry was able, for the first time in nearly a century, to compete for available traffic with the same pricing and other competitive weapons available to other modes. And it came at a time when the railroads were gaining the benefits of some long-overdue favorable tax adjustments. As a result of all these things, the railroads were in a comparatively good condition to ride out this economic storm.

"With this kind of situation just a few years ago, we would already have had a half a dozen bankruptcies," says AAR President William H. Dempsey. Now, Dempsey believes that if the economy does not materially worsen, the railroads as a whole could end up the year with a 2% return on investment—less than half the 4.25% they earned last year, but still better than they were able to report in pre-Staggers Act 1975, 1976, 1977 and 1978.

Says Henry Livingston of Kidder Peabody and Co., a professional watcher of railroads for 20 years: "If the economy moves along at current or even slightly worse levels, even through 1983, I think the cash position and the financial strength of the railroad industry will come out all right."

- **Equipment suppliers suffer.** While railroads appear likely to come out of this downturn in relatively good shape, as much cannot be said for their equipment suppliers. One of the most respected analyses of railroad equipment suppliers' prospects is that which is put out quarterly by Merrill Lynch Pierce Fenner & Smith—and Merrill Lynch's June 1982 "Railroad Equipment Industry Quarterly Update" is full of ominous tidings for the supply side.

"Industry orders in the first quarter of 1982 were at their lowest level since 1958," says the report. "The downtrend in orders has continued for 12 quarters and is the lengthiest and most severe since the 1930s. The absence of any meaningful demand can be attributed to depressed traffic levels that, with historically high deliveries in 1979, created a significant oversupply of most kinds of equipment."

Merrill Lynch finds the outlook for the rest of 1982 "not particularly encouraging. Orders for calendar 1982 could total fewer than 15,000 units. Orders in 1983 could, at best, recover to the mid-30,000s"—a forecast in line with that of carbuilders and component suppliers who are members of the American Railway Car Institute (see p. 3). ■

FRA's hands-off policy: It's starting to work

Pleased with progress of his campaign to "get the government out of railroading," Bob Blanchette sees two main future functions for FRA: (1) safety and (2) "the advocate's role."

By BILL FAHRENWALD,
Associate Editor

At last it seems as though railroads are receding from the limelight in Washington, D.C. With passage of the Staggers Act in 1980, important legislation affecting Conrail passed last year, and a temporary lull in the debate over Amtrak's mission this year, there is relative peace for rail lobbyists. Issues remain, of course, that are critical to railroads. But for the most part the unresolved questions have only to do with the degree to which government involvement in railroading ought to be reduced.

That fact can be credited largely to the Reagan Administration and its two chief rail policymakers—Secretary of Transportation Drew Lewis and Federal Railroad Administrator Robert W. Blanchette. *Railway Age* talked with Blanchette recently in his Washington office about the government's role in railroading.

Desite the Administration's often stated goal to "get government out of railroading," Blachette says that there will always be an FRA. Its function, though, will be largely altered. "I don't think we ought to be substituting ourselves for enlightened self interest within the industry," Blanchette says. He believes FRA should not be involved in "developing products or doing things of a proprietary nature."

Safety, he says, is and will be the agency's primary function. "Its secondary role," Blanchette says, "will be the advocate's role. We'll be beefing up the policy office so that we will have a better fix on where the industry is and of what its needs are so we won't get surprised and wake up one morning to find a dead railroad at our door." He thinks a lesson has been learned from the experience of the recent railroad bankruptcies: "If you get an early enough fix on where a problem is you don't have to throw money at it after it's too late."

Blanchette served as a Penn Central trustee—an experience that has left him with a strong desire to prevent anymore bankruptcies. He is satisfied with the progress that has been made as a result of last year's Conrail legislation, which he hopes will be the final chapter in the saga of the Penn Central's failure. An ending might now be in sight as the railroad faces its first critical test next June. The United States Railway Association (USRA) is to determine then whether Conrail has become profitable.

With the relief granted Conrail from high labor protection payments and the freedom to abandon lines, impose surcharges, and change rates, the railroad should achieve sufficient profitability to satisfy USRA. Conrail suffered a first quarter loss but it was significantly less than last year's loss, and railroad officials are optimistic that this year will be Conrail's second profitable year in a row.

"Conrail's looking good—to the extent that anybody's looking good in this economy," says Blanchette. "Two years ago, with this kind of economy, Conrail would have been dead." The turnaround, he says, comes from a "trinity of fortunate events... the Staggers Act in October, 1980, Stanley Crane's arrival in December of 1980, and Reagan's arrival in January of '81."

All commuter service provided by Conrail is to be taken over by individual agencies or Commuter Services Corporation by the end of this year. Whether there will be a problem free transfer is uncertain, but Blanchette is concerned mainly with getting Conrail out of the commuter business.

Through acquisition by the private sector, other northeast railroad problems appear to be headed for resolution, too.

Timothy Mellon's Guilford Transportation Industries has received ICC authority to acquire Boston & Maine, and a decision is due by July 26 on its bid to buy Delaware & Hudson from Norfolk & Western for $500,000. In Blanchette's view, the problems of D&H are over—one way or another. "If Guilford doesn't take it over," says Blanchette, "then that's it—I don't see any solution in sight." Unless the state of New York acts, he says, "The next solution is liquidation. I would not recommend putting another penny in the D&H." Guilford officials are said to view acceptable labor agreements as critical to whether they will finally buy the railroad. Blanchette predicts, "If the employees and managements agree on a collective bargaining requirement where D&H is at least competitive with Conrail on the cost side, then I think Guilford will take it over."

This hands-off attitude by Blanchette is typical of the Administration's policy toward railroads.

- **Congress balks.** In its budget proposals

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REVENUES AND EXPENSES OF RAILWAYS

First quarter figures of calendar year 1982

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

		Operating revenues				Operating expenses														
						Way & structures			Equipment											
		Freight	Other	Total 1982	Total 1981	Total 1982	Total 1981	1982 Deprec.	Total 1982	Total 1981	1982 Deprec.	Total 1982	Total 1981	Operating Ratio 1982	Operating Ratio 1981	Income after fixed charges 1982	Income after fixed charges 1981	1982 Net Ry. operating income	Net income 1982	Net income 1981
Amtrak	3 mos.	—	110,482	110,482*	274,221*	29,317	21,922	5,725	74,937	80,941	15,909	305,070	306,276	276.12	111.32	(211,641)	(45,730)	(194,588)	(211,641)	(45,730)
Atchison, Topeka & Santa Fe	3 mos.	524,211	11,191	535,402	581,233	76,532	88,629	3,582	128,747	127,646	22,859	521,757	534,575	97.45	91.97	3,097	40,166	12,721	1,881	28,616
Baltimore & Ohio	3 mos.	229,219	10,447	239,666	251,541	44,779	37,060	1,184	60,592	57,849	7,849	248,573	234,216	103.71	93.11	(10,539)	16,250	(3,861)	(6,036)	11,653
Bessemer & Lake Erie	3 mos.	14,455	2,146	16,601	22,391	3,126	2,729	709	3,527	2,461	1,407	19,921	16,777	119.99	74.92	(2,420)	7,329	(1,737)	(838)	3,904
Boston & Maine	3 mos.	28,513	1,508	30,021	30,558	5,659	5,566	314	8,102	8,066	362	30,728	29,945	102.35	98.00	604	1,626	(637)	411	1,430
Burlington Northern**	3 mos.	894,751	24,056	918,807	1,003,596	146,516	137,186	6,336	200,0[illegible]8	212,310	18,801	863,795	880,771	94.01	87.76	56,058	137,279	31,733	32,771	96,626
Chesapeake & Ohio	3 mos.	245,629	10,531	256,160	246,935	40,350	35,234	1,928	59,342	49,642	3,968	230,563	216,152	90.00	87.54	31,314	52,451	8,922	14,594	37,812
Chicago & North Western	3 mos.	177,116	22,485	199,601	259,8[illegible]	40,135	45,209	1,354	55,294	62,199	4,236	218,597	245,490	109.51	94.48	(7,016)	10,302	(17,479)	(7,022)	10,266
Chicago, Milwaukee, St. Paul & Pac.	3 mos.	86,779	10,792	97,551	102,948	18,319	9,942	794	28,421	35,364	3,655	106,703	110,664	109.38	107.49	(1,855)	140,736	(9,274)	(11,296)	140,655 ***
Clinchfield	3 mos.	26,139	542	26,681	26,901	4,814	4,245	121	4,674	4,083	983	21,601	19,473	80.96	72.38	4	3	5,799	—	—
Conrail	3 mos.	733,600	160,697	894,297	1,011,664	148,213	158,164	7,283	240,996	277,667	37,905	912,093	1,060,829	101.98	104.85	(22,624)	(58,305)	(17,650)	(17,290)	(57,491)
Delaware & Hudson	3 mos.	27,544	890	28,434	28,156	6,339	5,166	162	7,521	8,565	871	30,240	31,492	106.35	111.84	(3,954)	(4,998)	(1,704)	(3,954)	(4,998)
Denver & Rio Grande Western	3 mos.	77,199	1,694	78,893	80,179	13,467	13,326	629	14,992	12,284	2,922	71,799	67,538	91.00	84.23	6,646	11,987	5,068	4,611	6,938
Detroit, Toledo & Ironton	3 mos.	16,192	670	16,862	22,172	3,359	2,721	118	6,484	5,922	957	21,014	20,676	124.62	93.25	(4,610)	684	(4,148)	(4,610)	684
Duluth, Missabe & Iron Range	3 mos.	11,914	402	12,316	14,884	6,596	5,604	974	2,789	3,258	552	19,309	18,887	156.77	126.89	(5,829)	(3,321)	(4,180)	(3,027)	(1,606)
Elgin, Joliet & Eastern	3 mos.	16,091	12,009	28,100	29,611	3,564	2,989	196	1,482	2,959	1,885	21,691	22,876	77.19	77.25	7,876	8,385	2,728	4,195	4,641
Florida East Coast	3 mos.	22,831	357	23,188	25,901	6,124	6,795	326	3,184	3,686	1,008	20,029	22,548	86.37	87.05	4,021	4,222	2,089	2,951	3,055
Grand Trunk Western	3 mos.	58,215	2,895	61,110	55,669	7,653	5,979	450	13,550	11,458	1,200	61,756	53,443	101.05	96.00	(1,690)	1,452	276	(769)	2,850
Illinois Central Gulf	3 mos.	227,204	20,521	247,725	276,356	41,235	45,884	1,895	79,197	73,640	6,569	266,175	266,037	107.44	96.26	(17,178)	9,904	(17,516)	(16,745)	7,443
Kansas City Southern	3 mos.	80,696	3,672	84,368	75,051	15,670	13,426	759	17,444	14,867	4,934	71,245	62,887	84.44	83.79	10,527	9,263	10,198	7,569	7,175
Long Island	3 mos.	3,462	96,861	100,313	87,450	25,211	19,641	825	28,412	22,485	1,540	114,619	100,427	114.26	114.72	(14,378)	(13,039)	(13,201)	(14,378)	(13,039)
Louisville & Nashville	3 mos.	294,363	6,163	300,526	311,028	42,479	46,691	1,768	77,515	70,485	10,624	279,355	282,491	92.95	90.82	13,721	22,607	18,988	9,891	19,776
Missouri-Kansas-Texas	3 mos.	57,279	3,140	60,419	69,330	8,950	9,854	327	15,906	20,858	2,482	56,108	62,740	92.86	90.49	1,037	4,184	4,479	1,037	4,684
Missouri Pacific	3 mos.	429,805	14,658	444,463	478,357	55,217	67,471	2,535	107,792	107,580	16,904	387,238	412,321	87.12	86.19	50,084	58,985	43,432	33,798	39,196
Norfolk & Western	3 mos.	467,895	16,179	484,074	445,028	62,364	57,606	3,517	84,053	74,990	14,236	357,710	325,637	73.89	73.17	147,075	135,597	89,834	89,005	78,636
Pittsburgh & Lake Erie	3 mos.	13,818	1,832	15,650	19,319	3,313	2,865	40	3,329	3,126	305	17,495	18,267	111.78	94.55	(3,299)	(721)	(1,839)	(3,306)	(878)
St. Louis Southwestern	3 mos.	98,717	1,363	100,080	91,041	13,981	15,399	460	21,234	15,212	5,974	84,085	79,710	84.01	87.55	16,442	9,692	9,416	9,863	6,682
Seaboard Coast Line	3 mos.	307,529	9,941	317,470	343,419	49,732	54,226	2,365	60,464	79,197	9,354	300,727	305,869	94.72	89.06	30,174	64,499	14,160	27,162	60,804
Soo Line	3 mos.	74,467	1,284	75,751	79,464	11,937	10,844	420	16,900	14,734	2,020	67,139	62,155	88.63	78.21	9,687	17,851	5,150	6,017	11,090
Southern	3 mos.	401,588	9,704	411,292	437,455	52,871	58,023	4,753	82,356	80,027	20,622	345,152	343,650	83.91	78.55	67,571	91,553	42,758	42,786	59,107
Southern Pacific	3 mos.	530,460	16,738	547,198	545,289	94,945	79,205	4,694	168,315	135,874	21,689	576,522	539,109	105.35	98.86	(17,727)	3,683	(28,945)	(17,348)	3,750
Union Pacific	3 mos.	464,144	6,515	470,659	535,028	60,134	70,345	3,111	93,005	99,384	24,421	414,229	439,921	88.01	82.22	49,360	81,856	37,597	30,442	52,768
Western Maryland	3 mos.	19,665	709	20,374	22,479	2,867	4,557	214	2,973	1,990	1,576	15,437	19,630	75.76	87.32	5,405	2,896	2,495	2,954	1,626
Western Pacific	3 mos.	45,533	591	46,124	49,231	6,854	6,549	110	10,649	10,699	1,789	47,939	46,626	103.93	94.70	1,143	2,179	(1,930)	[illegible]	1,814

*Includes subsidies.

**Figures have been restated to include the Colorado & Southern and the Fort Worth & Denver.

***Includes real estate sales.

Market

CARLOADINGS

Loadings of revenue freight in the week ended June 19 totaled 373,048 cars, according to the Association of American Railroads. This was a decrease of 64,185 cars, or 14.7%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended June 19 are estimated at 16.0 billion, a decrease of 14.4% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**June 19 week**	**June 12 week**
Grain	23,677	24,369
Other farm products	4,736	4,924
Metallic ores	14,853	14,799
Coal	121,614	118,435
Crushed stone, gravel & sand	10,314	10,327
Nonmetallic minerals	8,308	9,108
Grain mill products	11,276	11,238
Food & kindred products	12,896	13,112
Primary forest products	15,918	15,765
Lumber & wood products (except furniture)	6,704	6,730
Pulp, paper & allied products	16,253	15,880
Chemicals & allied products	21,144	21,678
Petroleum products	4,719	4,531
Stone, clay & glass products	10,383	10,503
Coke	4,316	4,547
Metals & products	8,629	8,852
Motor vehicles & equipment	17,542	17,166
Waste & scrap materials	7,938	8,400
Forwarder & shipper assn. traffic	8,824	8,289
All other carloads	42,731	44,278
LCL traffic	273	257
Total Cars Loaded	**373,048**	**373,188**
Cumulative total,	1982	1981
24 weeks	**9,321,986**	**10,314,446**
Estimated revenue ton-miles (billions), 25 weeks	**401.1**	**439.9**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended June 12 totaled 37,937 cars (10.3% above the corresponding 1981 week) and 65,314 trailers or containers (up 6.5% from 1981). Cumulative volume for the first 24 weeks of 1982 is 848,330 cars (up 8.1% from 1981) and 1,510,493 trailers or containers (up 6.3% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the ten-day period ended May 31 totaled 5.9 million metric tonnes (down 0.2% from 1981). Cars loaded totaled 85,748 (down 10.7% from last year). Cumulative loadings for 1982 were 88.5 million metric tonnes (down 6.9% from 1981).

- *Metropolitan Atlanta Regional Transit Authority.*—Awarded an $11.5-million contract to Union Switch & Signal Division of American Standard for supply and installation of automatic train control system equipment for four new stations—two (plus one interlocking) on MARTA's North Line and two (plus one interlocking) on the South Line. The contract calls for train detection, identification, routing and signaling equipment along with related control apparatus for extending the South Line nearly one mile and the North Line over five miles. The project will be the second US&S has performed for MARTA. US&S built and completed installation of the train control system equipment for the Avondale Yard in 1979.

- *Port Authority of Allegheny County.*—Awarded two major contracts in connection with construction of a 10.5-mile light rail transit line that will serve the Pittsburgh area. A contract worth $5,056,267 went to Transcontrol for supply and installation of a signal control system at the car maintenance shops and yards under construction near the South Hills Village shopping center. Bethlehem Steel won a $1,699,977 contract for supply of 3,516 tons of jointed running rail and joint bars for installation on the LRT mainline through and from the downtown subway to the Dorchester shop in Bethel Park.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

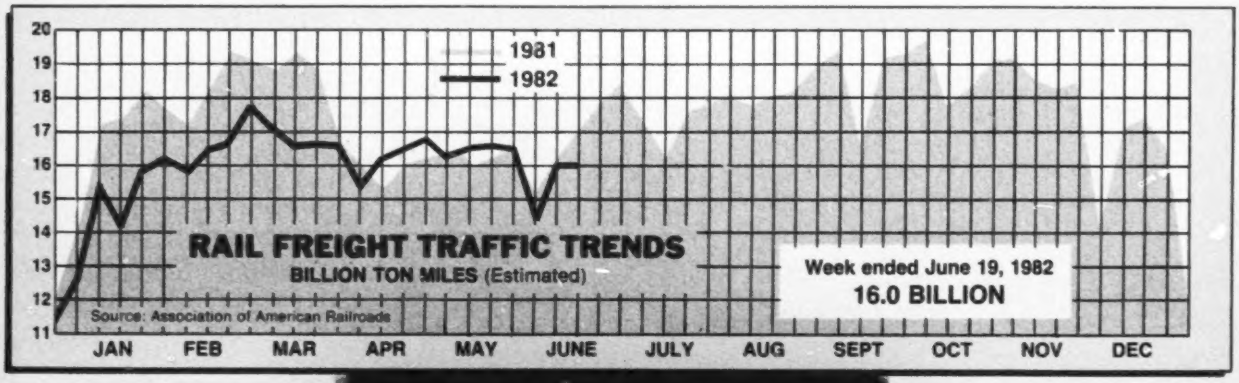
	May		**April**	**Five months**	
	1982	**1981**	**1982**	**1982**	**1981**
Built new by carbuilders	1,694	3,779	2,265	9,350	21,754
Build new in RR shops	100	364	178	891	1,841
Built new—total	1,794	4,143	2,443	10,241	23,595
Rebuilt	130	125	136	648	571
TOTAL DELIVERED	**1,924**	**4,268**	**2,579**	**10,889**	**24,166**
Locomotives (new and rebuilt)	70	67	29	227	325

ORDERED

To be built new by carbuilders	487	1,791	539	4,079	9,393
To be built new in RR shops	0	25	0	0	25
To be built new—total	487	1,791	539	4,079	9,418
To be rebuilt	0	500	0	0	1,100
TOTAL ORDERED	**487**	**2,291**	**539**	**4,079**	**10,518**

ON ORDER AND UNDELIVERED

	June 1		**May 1**	**Average Backlog**	
	1982	**1981**	**1982**	**1982**	**1981**
To be built new by carbuilders	8,478	32,900	9,685	11,032	38,459
To be built new in RR shops	775	2,688	875	1,095	3,475
To be built new—total	9,253	35,588	10,560	12,127	41,934
To be rebuilt	252	529	382	521	268
TOTAL ON ORDER	**9,505**	**36,117**	**10,942**	**12,648**	**42,202**
Locomotives (new and rebuilt)	178	287	188	201	407



RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

Source: Association of American Railroads

Week ended June 19, 1982
16.0 BILLION

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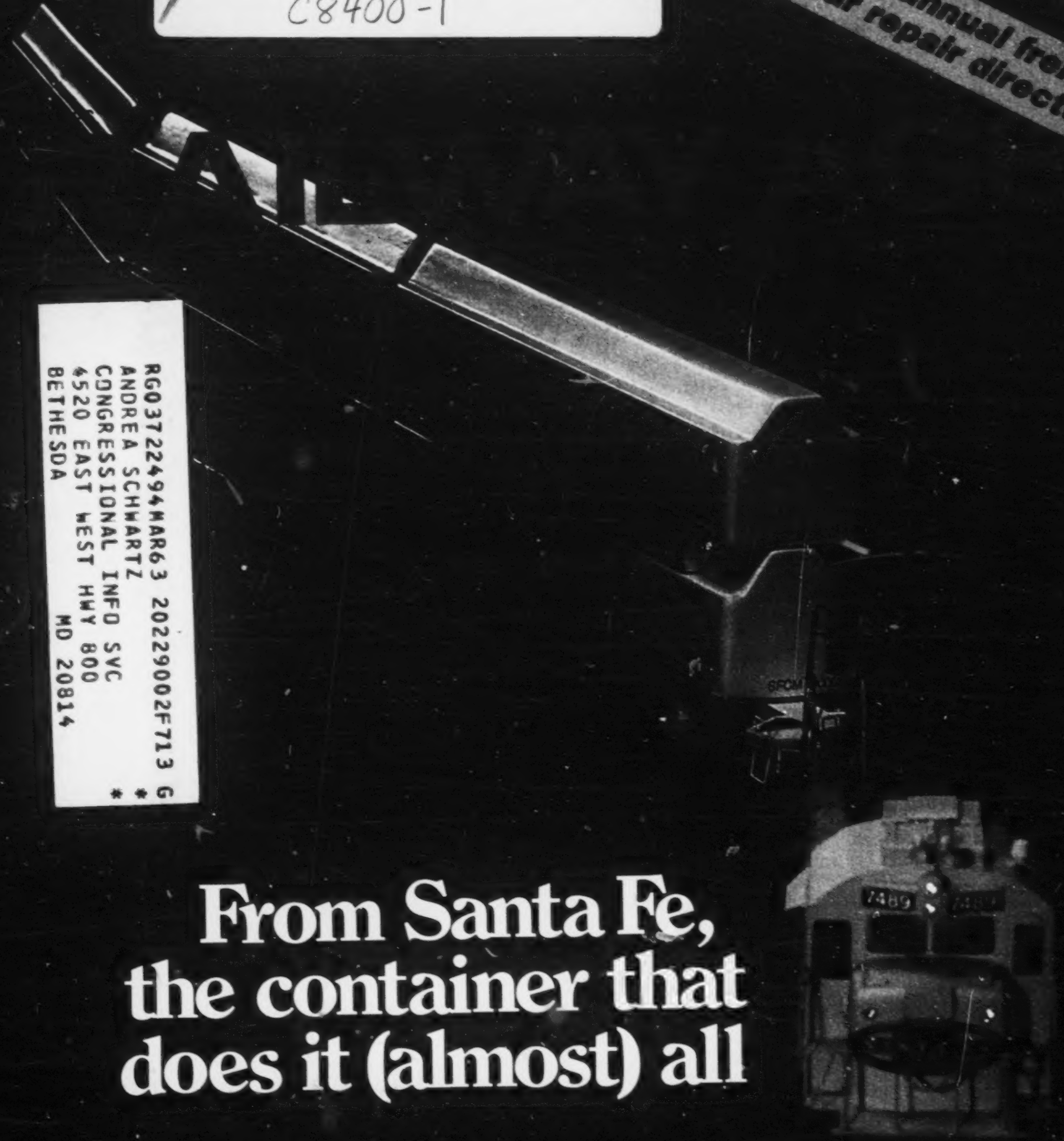
/ C8400-1 8/4/82

10th annual freight-car repair directory

RG03722494MAR63 20229002F713 G
ANDREA SCHWARTZ *
CONGRESSIONAL INFO SVC *
4520 EAST WEST HWY 800
BETHESDA MD 20814



From Santa Fe, the container that does it (almost) all

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RAILWAY AGE

July 26, 1982

FEATURES

From Santa Fe, the container that does it (almost) all

Cover: Model of Santa Fe's versatile new container. *Page 16.*

16 **Santa Fe's almost-all-purpose container**
Coal, grain, petrochemicals, packaged dry freight—ATSF's new container, now at the prototype stage, is designed to handle virtually any load by any mode.

18 **An answer to locomotive idling?**
Microphor says its new LTV system, which permits locomotives to start up in cold weather without idling, can save up to 14,800 gallons of fuel per engine per year.

20 **Nebraska welcomes the Sidney & Lowe**
The Sidney Car Shops complex, which maintains 1,200 privately-owned unit-train cars, now has its own 11-mile connection with the BN and the UP.

22 **Rail Car Nebraska: A proud shop**
When RCN took over the Omaha operation five years ago, there were six cars in for repair—but a reputation for quality work led to rapid expansion.

23 **1982 Directory of Contract Car Repair Facilities**

63 **Safetran: A promise kept**
"Total systems capability" was the goal enunciated a decade and a half ago. Performance, writes Associate Editor John Armstrong, has matched the promise.

68 **Uniform Rail Costing: What it means, why it matters**
The Staggers Act has made it more important than ever that railroads pin down their variable costs with precision. URCS could be just the tool they need.

SIDNEY & LOWE RAIL ROAD

Page 20

Page 63

NEWS

4 Short and Significant
8 Conrail: Salvation through cost control
10 Matching jobs with job-seekers
14 First Boston joins the "bullet" team
14 Berwick enters the intermodal derby
14 Amtrak wins Breda contract
15 Budd loses in bid for Ex-Im support
71 The Railroad Market

COMMENT

3 Inside
10 Watching Washington
15 Lines on Labor

DEPARTMENTS

70 Advertising Sales
71 Carloadings
72 100 Years Ago
73 People in the News
73 Suppliers
73 Transit
74 Classified Advertising
76 Professional Cards
77 Guide to Advertisers
78 Products Report

Market

CARLOADINGS

Loadings of revenue freight in the week ended July 3 totaled 333,043 cars, according to the Association of American Railroads. This was a decrease of 71,944 cars, or 17.8%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended July 3 are estimated at 14.4 billion, a decrease of 13.1% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

	July 3 week	June 26 week
Grain	27,402	22,848
Other farm products	4,048	4,396
Metallic ores	13,607	14,070
Coal	83,798	120,179
Crushed stone, gravel & sand	9, 344	9,705
Nonmetallic minerals	8,181	9,265
Grain mill products	11,312	11,268
Food & kindred products	13,014	13,090
Primary forest products	12,796	14,887
Lumber & wood products (except furniture)	6,273	6,791
Pulp, paper & allied products	15,849	16,612
Chemicals & allied products	20,777	21,193
Petroleum products	4,567	4,565
Stone, clay & glass products	9,798	10,170
Coke	4,442	3,948
Metals & products	8,980	8,072
Motor vehicles & equipment	16,044	17,630
Waste & scrap materials	6,807	7,552
Forwarder & shipper assn. traffic	9,306	9,113
All other carloads	46,485	46,248
LCL traffic	213	208
Total Cars Loaded	**333,043**	**371,810**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended June 26 totaled 38,883 cars (9.5% above the corresponding 1981 week) and 66,511 trailers or containers (up 5.5% from 1981). Cumulative volume for the first 26 weeks of 1982 is 925,533 (up 8.2% from 1981) and 1,642,829 trailers or containers (up 6.3% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended June 14 totaled 4.7 million tons (down 5.7% from 1981). Cars loaded totaled 77,035 (down 7.8% from 1981). Cumulative loadings for 1982 were 97.6 million tons (down 7.0% from 1981).

- *Kennecott Minerals Co.*—Awarded a $2.3-million contract to Morrison-Knudsen's Railroad Division for the remanufacture of four SW1500 locomotives, including options and spare motor-equipment trucks. The locomotives will be used by KMC at its copper facilities at Bingham Canyon, Utah.

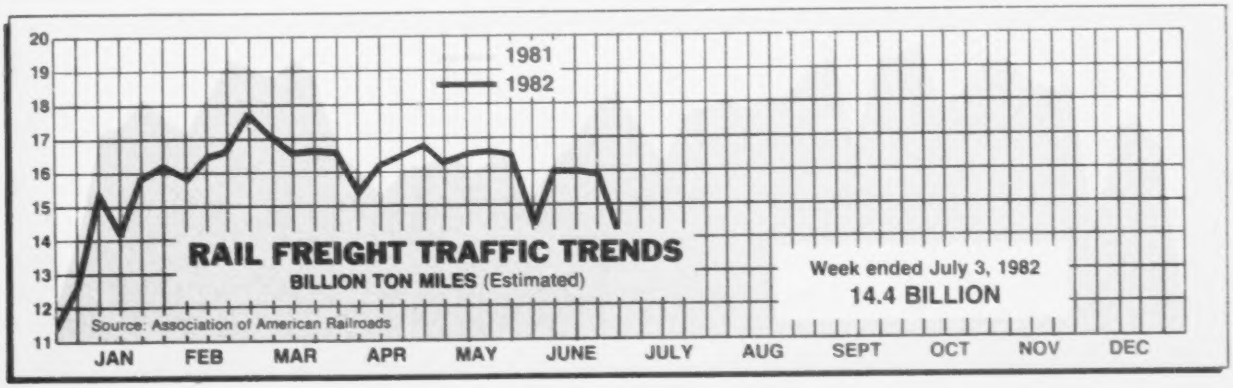
- *New York City Transit Authority.*—General Railway Signal is the apparent low bidder on a $5.4-million contract to install a control system for the Crescent Street interlocking. Scheduled for completion in November 1984, the project calls for installation of Generalogic I microprocessors, control and indication panels, automatic train stop devices, electric switch machines, color-light signals, track circuits, and wayside steel housings wired with relays, as well as a variety of electronic control equipment.

- *New York Metropolitan Transportation Authority.*—Awarded a $3.3-million contract to Dravo Constructors, Inc., as an extension to an earlier contract for construction management services for the Long Island Rail Road's West Side storage yard. Due for completion in 1985, the yard is designed to accommodate up to 350 railcars.

- *Richmond Leasing Co.*—Has entered into a $25-million equipment financing agreement with General Electric Credit Corp. Over the next few months, Richmond Leasing, a subsidiary of Richmond Tank Car Co., will sell 115 hopper cars and 265 tank cars to General Electric Credit and lease them back for a period of 20 years. Said Richmond Chairman Wayne D. Harbin: "The proceeds from this transaction will be used to replace high-cost, short-term bank debt (1% over prime) with long-term 20-year debt at an effective rate of 12.66%. In addition, at any time during the first five years of the transaction, the company may, at no penalty, arrange debt funding to take out a portion of General Electric Credit Corp.'s remaining investment in the cars in order to further reduce interest cost."

- *San Francisco Municipal Railway.*—Received a $12.5-million grant from the Urban Mass Transportation Administration to assist in reconstruction of Muni's cable car system. The grant, which brings total UMTA commitment for the project to $21.5 million, will help pay for rehabilitation of the cable car barn and trackway.

- *Union Pacific-Burlington Northern.*—Applied jointly to FRA for approval to install a remotely controlled electric interlocking to replace a mechanical plant at a crossing-in-grade of the two roads at Grand Island, Neb.



RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

Source: Association of American Railroads

Week ended July 3, 1982

14.4 BILLION

C8400-1 8/19/82

August 9, 1982

RAILWAY AGE

Railroads 2000: A long look ahead

Union Pacific: Maintaining a proud track record

3702
UNION PACIFIC

RG03722494MAR63 2022900 2F713
ANDREA SCHWARTZ
CONGRESSIONAL INFO SVC
4520 EAST WEST HWY 800
BETHESDA MD 20814

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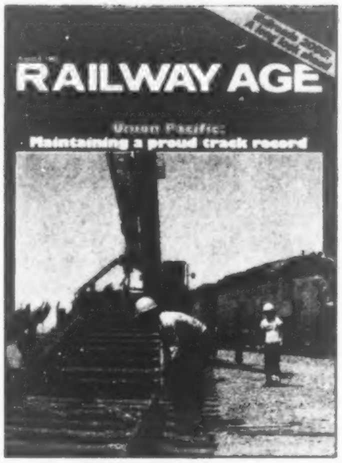
RAILWAY AGE

August 9, 1982



Cover: UP track crew working at Yermo Yard. *Page 19.*

FEATURES

14 **KCP&L teardown: When no news was good news**
As expected, the cars at Kansas City Power & Light's sixth annual hopper car teardown were in good shape, due to the utility's strict preventive maintenance standards.

19 **UP: Maintaining a proud track record**
Constant inspection and using the best quality materials available keep Union Pacific's track from "deteriorating" from excellent to merely good.

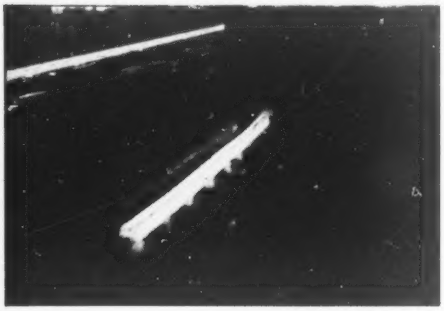
24 **CF&I: A quality response to imported rail**
For 100 years the major rail supplier to the western states, CF&I Steel is investing heavily in innovation to meet the challenges of foreign competitors.

30 **Railroads 2000: Revving up for the 21st century**
Senior Editor Gus Welty, looking 18 years down the line, sees a stronger, more integrated, technologically advanced transportation system.

34 **Canada's LRC: Low cost, high speed**
Bombardier, which convinced VIA Rail Canada of the advantages of the LRC, hopes to win the hearts of high speed corridor developers in the U.S.

40 **Vancouver gets ready for space-age transit**
The controversial linear induction motor will power Vancouver's transit system, and Canada's UTDC strongly defends its choice of technology.

43 **On the drawing board: A low-cost catenary**
A preliminary design study suggests that a catenary system could be built for perhaps a third the cost of a conventional catenary.



Page 24

Page 34

NEWS

4 Short and Significant
9 Guilford wins ICC okay on D&H
10 Is ICC chief's job in jeopardy?
12 Trailer Train picks two prototypes
13 Grain: Some positive signs
13 Amtrak buys electronic watchdog
47 The Railway Market

COMMENT

3 Inside
10 Watching Washington
12 Lines on Labor

DEPARTMENTS

16 Advertising Sales
44 People in the News
45 Suppliers
45 Transit
47 Carloadings
48 100 Years Ago
49 Professional Cards
50 Classified Advertising
52 Products Report
52 New Literature

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Market

CARLOADINGS

Loadings of revenue freight in the week ended July 17 totaled 343,028 cars, according to the Association of American Railroads. This was a decrease of 80,628 cars, or 19.0%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended July 17 are estimated at 14.5 billion, a decrease of 15.4% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	July 17 week	July 10 week
Grain	26,944	26,034
Other farm products	4,615	3,811
Metallic ores	13,565	12,094
Coal	101,212	64,072
Crushed stone, gravel & sand	9,833	8,275
Nonmetallic minerals	9,080	8,144
Grain mill products	11,385	9,682
Food & kindred products	12,867	10,556
Primary forest products	15,259	10,948
Lumber & wood products (except furniture)	5,829	4,080
Pulp, paper & allied products	14,647	12,417
Chemicals & allied products	19,552	17,209
Petroleum products	4,606	4,250
Stone, clay & glass products	10,206	8,362
Coke	4,423	4,214
Metals & products	7,605	6,947
Motor vehicles & equipment	13,921	12,303
Waste & scrap materials	7,191	5,686
Forwarder & shipper assn. traffic	7,605	7,119
All other carloads	42,480	35,922
LCL traffic	203	161
Total Cars Loaded	**343,028**	**272,286**
Cumulative total,	1982	1981
29 weeks	**10,635,643**	**11,963,140**
Estimated revenue ton-miles (billions), 29 weeks	**457.8**	**508.5**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the holiday week ended July 10 totaled 29,986 cars (1.6% below the corresponding 1981 week) and 51,593 trailers or containers (down 1.5% from 1981). Cumulative volume for the first 28 weeks of 1982 is 994,578 car (up 8.2% from 1981) and 1,761,692 trailers or containers (up 6.3% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended June 21 totaled 4.7 million tons (down 13.0% from 1981). Cars loaded totaled 70,440 (down 14.6% from 1981). Cumulative loadings for 1982 were 102.3 million tons (down 7.3% from 1981).

- *Ortner.*—Has received orders from Mapco of Tulsa, Okla., for 80 Rapid Discharge Cars and from Seminole Electric Cooperative of Palatka, Fla., for 300 rotary-dump gondolas. The cars will be used at both ends of a rail-water-rail coal move. Mapco will use the Rapid Discharge cars to form a 72-car unit train which will bring coal from two mines to a rail-to-water transloader being built in Mt. Vernon, Ind., by the Mt. Vernon Coal Transfer Corp. The cars will unload in motion into a 98-ft undertrack hopper, from which the coal will be conveyed to waiting barges or to a small stockpile. The handling railroad is Louisville & Nashville. The coal will be barged from Mt. Vernon down the Mississippi River and across the Gulf to Port St. Joe, Fla., where it will be loaded into gondolas for transport to Seminole's plant in Palatka. Handling railroads in Florida will be the Apalachicola Northern and Seaboard Coast Line.

- *Union Carbide Corp.*—Placed a $600,000 order with General Railroad Equipment and Services of East St. Louis, Ill., for eight 100-ton flat cars. The cars, which will be built at General Railroad's Alorton, Ill., plant, will be specially equipped for the transportation of cylinders of radioactive materials.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

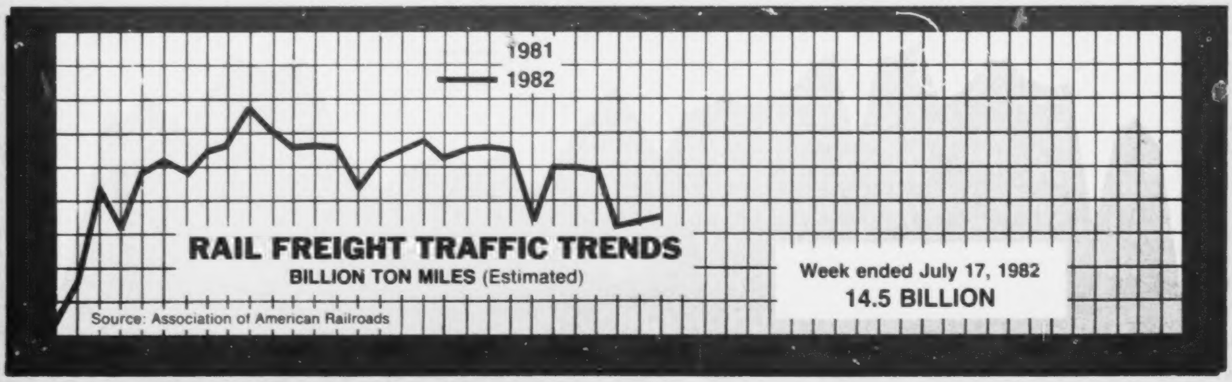
	June		May	Six months	
	1982	1981	1982	1982	1981
Built new by carbuilders	1,244	3,442	1,694	10,594	25,196
Build new in RR shops	95	339	100	986	2,180
Built new—total	1,339	3,781	1,794	11,580	27,376
Rebuilt	142	80	130	790	651
TOTAL DELIVERED	**1,481**	**3,861**	**1,924**	**12,370**	**28,027**
Locomotives (new and rebuilt)	54	108	70	281	433

ORDERED

	June		May	Six months	
	1982	1981	1982	1982	1981
To be built new by carbuilders	586	927	487	4,665	10,218
To be built new in RR shops	0	228	0	0	253
To be built new—total	586	1,155	487	4,665	10,471
To be rebuilt	0	0	0	0	1,100
TOTAL ORDERED	**586**	**1,155**	**487**	**4,665**	**11,571**

ON ORDER AND UNDELIVERED

	July 1		June 1	Average Backlog	
	1982	1981	1982	1982	1981
To be built new by carbuilders	7,820	29,744	8,478	10,496	37,007
To be built new in RR shops	680	2,577	775	1,026	3,325
To be built new—total	8,500	32,321	9,253	11,522	40,332
To be rebuilt	110	449	252	453	299
TOTAL ON ORDER	**8,610**	**32,770**	**9,505**	**11,975**	**40,631**
Locomotives (new and rebuilt)	144	196	178	191	372



RAIL FREIGHT TRAFFIC TRENDS

BILLION TON MILES (Estimated)

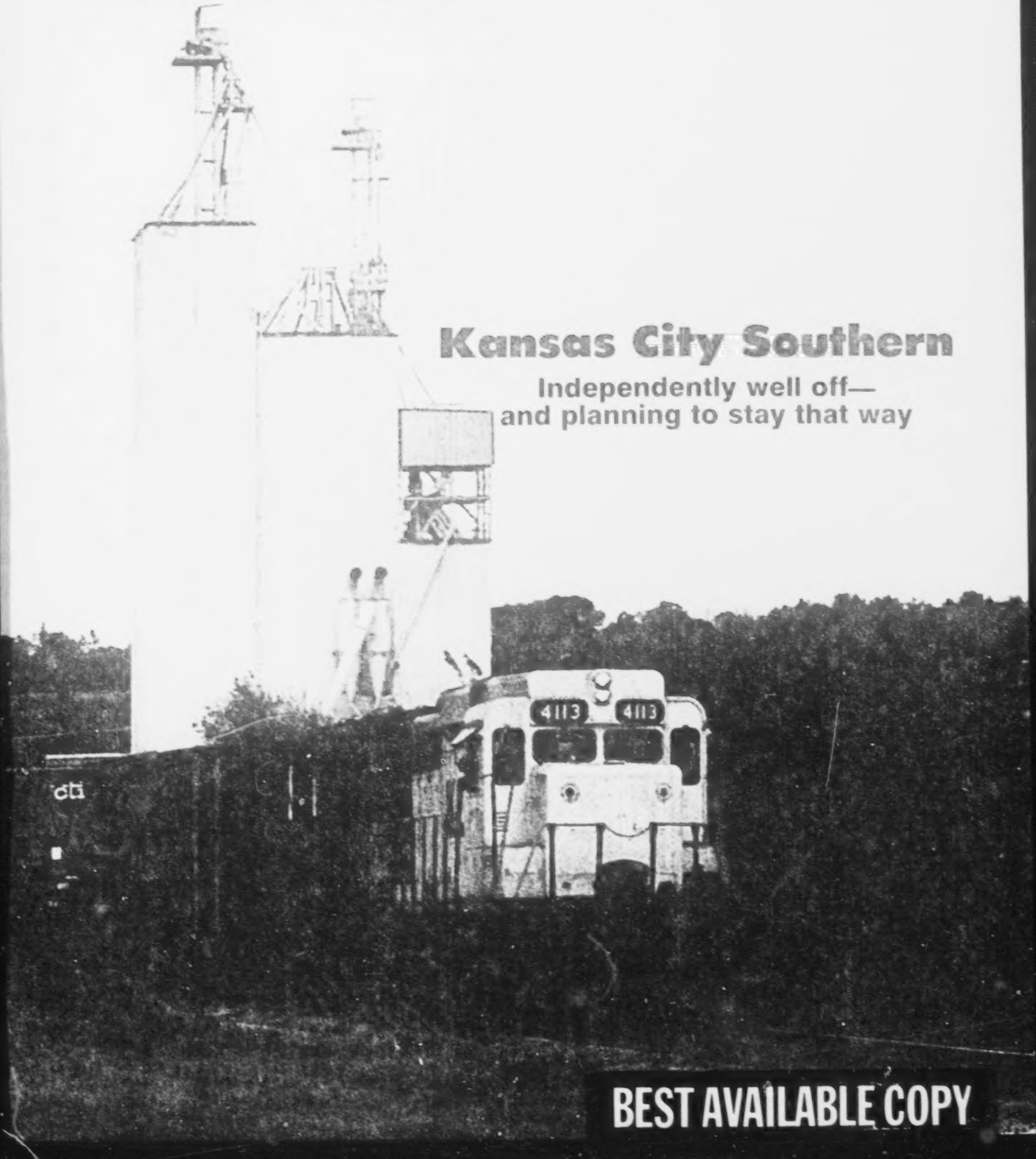
Source: Association of American Railroads

1 C8400-1

UP shops: Capital investment pays off

August 30, 1982

RAILWAY AGE



Kansas City Southern

Independently well off— and planning to stay that way

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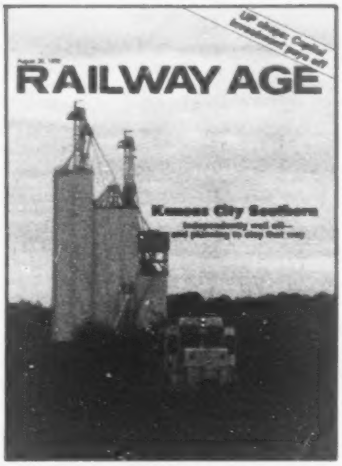
RAILWAY AGE

August 30, 1982

FEATURES



Cover: Grain-handling terminal on KCS near Noel, Mo. *Page 14.*

14 **KCS: Marketing to stay independent**
Going it alone when you're surrounded by giants isn't easy—but KCS hopes to stay single and prosperous through marketing ingenuity and an extended reach.

19 **For UP shops, capital investment pays off**
During the '70s Union Pacific invested $95.8 million in Mechanical Department equipment and facilities. The outlay has already paid for itself twice over.

24 **A new approach to fleet management**
Through its subsidiary SEEK (Superior Equipment Employment by Computer), North American Car is offering "total concept" fleet management to all comers.

26 **A big push for perishables-by-piggyback**
The Plan 3 fleet of reefer trailers (which has grown from 1,000 to 5,800 in two years) will account for 75,000-80,000 trailerloads of perishables in '82.

29 **The ethics of buying (and selling) transportation**
In a *Railway Age* survey, major shippers comment on practices (including "shopping around") that many believe are unwise and ultimately self-defeating.

Page 19

NEWS

4 Short and Significant
8 RoadRailer comes to the Big Apple
10 Slurry advocates gain ground
11 First-half net tops half-billion
11 Kershaw delivers No. 2,000
12 ICC focuses on light density lines
13 TRRA spurns federal funding
36 From Boards 194 and 195, a mixed verdict
37 The Railroad Market

Page 26

COMMENT

3 Inside
10 Watching Washington
13 Lines on Labor

DEPARTMENTS

37 Carloadings
38 Advertising Sales
39 People in the News
39 Suppliers
40 Classified Advertising
42 Professional Cards
43 Industrial Traffic
43 Associations
43 Guide to Advertisers
44 Products Report

First-half net tops half-billion

Class I railroads have reported ordinary (net) income of $556.3 million for first-half 1982. This compares with a net of $962.1 million for the comparable 1981 period.

Only the Eastern District roads reported higher earnings this year—$192.2 million compared with $85.2 million in 1981. This was due in part to the fact that the 1981 period included a prolonged coal strike. The improved picture in the East also reflects the dramatic turnaround that has taken place at Conrail, which reported net income of $30.6 million in this year's first six months compared with a loss of $52.1 million in first-half '81.

The industry's rate of return on net investment for the 12 months ended June 30 was 3.07%, down from 4.59% a year earlier.

The financial report issued Aug. 16 by the Association of American Railroads shows that tight cost controls have helped the industry to weather the recession in relatively good condition. In the second quarter, for example, the reduction in operating expenses ($353.8 million) almost equalled the decrease in operating revenues ($359.7 million).

Net income for the 1982 second quarter was actually slightly higher than for the corresponding 1981 period—$340.2 million compared with $336.4 million. Eastern roads again led the way, rising from $18.4 million to $132.2 million.

CLASS I RAILROADS IN THE UNITED STATES
For the second quarter

	1982 (millions)	1981 (millions)
Operating Revenues	$ 7,222.1	$ 7,581.8
Operating Expenses	6,820.6	7,174.4
Net Revenue from Operations		
United States	401.5	407.4
Eastern District	161.2	6.7
Southern District	51.3	123.5
Western District	189.0	277.2
Ordinary Income		
United States	340.2	336.4
Eastern District	132.2	18.4
Southern District	65.6	96.1
Western District	142.4	222.0
For the first six months		
Operating Revenues	$14,412.3	15,241.4
Operating Expenses	13,641.9	14,128.3
Net Revenue From Operations		
United States	770.4	1,113.1
Eastern District	271.1	129.3
Southern District	145.2	304.5
Western District	354.2	679.3
Rate of Return on Net Investment[1]	3.07%	4.59%
Orindary Income		
United States	556.3	962.1
Eastern District	192.2	85.2
Southern District	131.4	246.2
Western District	232.7	630.7

[1] - Rate of return for 12 months ended June 30 (preliminary)

Kershaw delivers No. 2,000

It was a family affair when Kershaw Manufacturing Co. delivered its 2,000th ballast regulator to the Family Lines at Montgomery, Ala., on July 26. In the photo are Royce Kershaw, Jr., chairman of Kershaw; A.C. Jones, vice president, engineering and maintenance, Family Lines; R.D. Spence, executive vice president, operations, Family Lines; and Knox Kershaw, II, president of Kershaw Manufacturing. It was in 1945 that Royce Kershaw, Sr., transformed an Army surplus truck into the world's first ballast regulator.

Modern facilities for railcar repair and rebuilding, steel fabrication, welding and hot riveting, AAR inspections, and billing less than AAR.

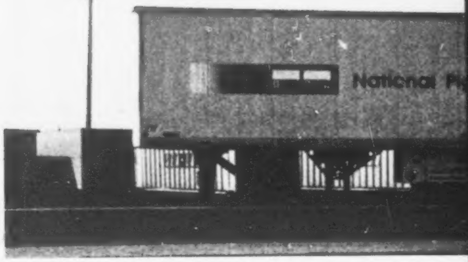
Pittsburgh Railcar, Inc.

Box K, Glassport, PA 15045
412 672-6700

Contact Larry McGinnis, V.P.-Sales
or Jack Burke, V.P.-Marketing

Write in 21 on Reader Service Card

Agricultural Express of America trailer is lifted onto one of Pullman Standard's four-platform prototype intermodal cars, recently delivered to Trailer Train for tests.



National Piggyback Services, owned by BRAE Corp.,

Plan 3 operators push perishables traffic

The return of perishables traffic to the rails is being spurred by agricultural forwarders who are providing refrigerated-trailer, single-through-bill-of-lading, door-to-door service.

By RON HEIMBURGER
President, Intermodal Concepts, Inc.

New names, initials, reporting marks keep cropping up on piggyback trailers—mainly on refrigerated trailers used in the long-haul movement of crops, fresh fruits and vegetables.

Perishables-by-piggyback is a true growth industry, getting railroads back into a market that once was theirs and then slipped into the hands of unregulated motor carriers. The keys to growth have been customer supply of equipment, railroad ramp-to-ramp service, and balanced loaded movements with perishables moving in one direction and dry freight moving in the other.

Perishable Plan 3 operators are, for the most part, unregulated agricultural forwarders, providing refrigerated-trailer, door-to-door, single-through-bill-of-lading service to perishables shippers and receivers, including grocery chains. The commodities include lettuce, avocados, cauliflower, limes, cherries; you name it, it's probably moving somewhere under a Plan 3 arrangement. Primary origins today are Arizona, California, Oregon, Washington and Florida. Primary destinations are cities between the Mississippi River and the East Coast.

And, even though the names and initials on the trailers may not be familiar—as familiar as the names of such forwarders as Clipper Exxpress, Universal/Pioneer or Merchant/Stor Dor—many of the Plan 3 operators have close ties to major forwarders, shipper agents, shipper associations and motor carriers.

- **How they sell.** Plan 3 operators sell their services in two ways.

In one, the operator will sign a contract with the shipper or receiver. The operator agrees to make available a certain number of trailers per week or per month, and the shipper/receiver agrees to use at least that number of units. The per-trailer origin-destination rate may be fixed on an annual basis, it may vary with the shipping season or it may even vary on a monthly basis. Contract lengths run from one to several years, with one- and two-year contracts currently popular.

Under the second arrangement, the participants play the spot market. The Plan 3 operator will quote a daily trailer rate, origin-destination, based upon his knowledge of daily shipping needs, available competitive equipment (rail and over-the-highway), and competitive rates. The operator is trying to get the highest rate that the market will bear. The shipper/receiver, meanwhile, shops around for the lowest price—and hopes that all available trailers are not committed before he makes up his mind. Because of such factors as weather conditions, holidays, rates in other growing areas, and the ability to get a profitable (or at least quick) return load, rates can take sharp swings over a week or even over a few days, and seasonal price swings are significant. For example, summer rates for lettuce last year from California to New York ran to $4,200 or more per trailer, while winter rates fell to about $2,000 per trailer in the same traffic lane. Playing the spot market, all things considered, is a high-risk business but one with high potential return for both operator and user.

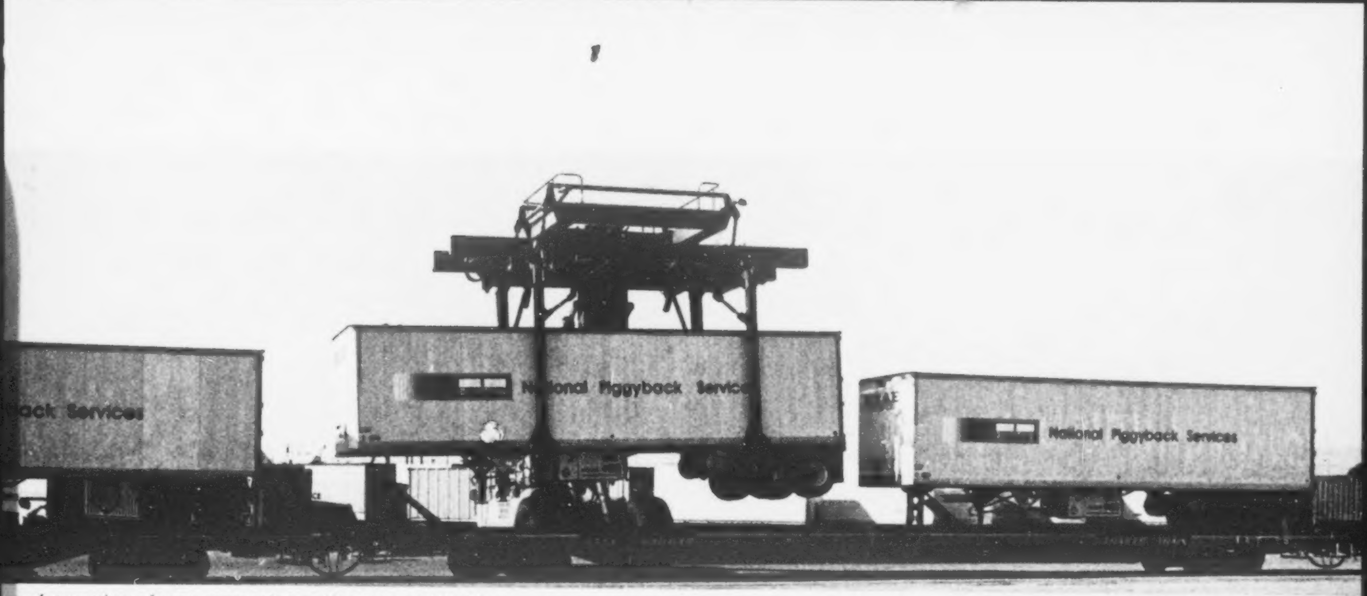
- **What they deliver.** For the per-trailer rate charged, the Plan 3 operator will maintain the trailer equipment, pre-trip the trailer, dispatch the unit to the shipper, pay drayage to the TOFC terminal and from the terminal to the receiver at the other end, and arrange and pay for any rubber-tire railroad interchanges that may be required. The operator will also track the trailer from loading to unloading and provide customer notification as needed or requested.

And, of course, the operator arranges for and pays for the railroad line-haul.

Currently, most of the traffic moves on annual volume contracts at favorable rail rates. And most of the railroads require that the operator balance each low-rail-rate perishables move with a higher-rate dry-freight trailer move in the reverse direction. This improves trailer balance, and it reduces the need to reposition empty trailers over long distances. At the same time, under these contracts, railroads will reposition the reefer trailer from its dry-freight destination to a ramp close to the perishables-shipping area.

Because of the trailer-balance requirement in the contracts, the ability to control dry-freight movements—primarily westbound—

Ron Heimburger, before founding his own company about a year ago, was director-business development, North American Car, and before that, a manager with A.T. Kearney.



e of a number of new companies getting into perishables.

is critical to trailer utilization and to the profitability of the Plan 3 operator.

• Who they are. Several operators contract with freight forwarders, shippers agents or shippers associations to reload and return the equipment. Others move the trailers themselves or in cooperation with related shipper associations. Some control the dry-freight balance with their own forwarder, agent or association or even motor carrier operations. These arrangements have created interesting structures and affiliations. For example:

—AXXA, Agricultural Express of America, is under common ownership with a major freight forwarder, Clipper Exxpress.

—Agrishare is an agricultural cooperative.

—CO-OP, Co-operative Shippers, Inc., is a major shipper cooperative and was probably the first major Plan 3 operator, working in conjunction with Santa Fe.

—Cornucopia Transportation, Inc., is a privately-held company.

—Fresh Approach Transport Co. is also privately-held and is managed by Riley Whittle, Inc., a transportation broker.

—Gelco Rail Services is owned by Gelco Corp., which leases trailers, containers, trucks and automobiles.

—Intermodal Express is privately-held and also operates in the shippers-agent and motor-carrier areas.

—Intermodal Systems is owned by Leaseway Transportation, which operates Midwest Distribution, a new ltl operation, and several contract motor carriers, as well as leasing trailers.

—Lomax Consolidators is privately-held and also operates as a boxcar shippers agent.

—Martrac is owned by United Parcel Service.

—National Piggyback Services is owned by BRAE Corp., which operates a major shippers agent and also leases railcar equipment and trailers.

—PSAZ, Pacific Northwest Shippers Association, is a major shippers association for eastbound commodities.

—Rail Services, Inc., is privately-held.

—TRANFAX is a privately-held company which packages limited-partnership agreements for trailers.

—Transamerica Distribution Services is owned by Transamerica, Inc., which is a major insurance company and also a trailer lessor through REALCO.

—U.S. Intermodal Distribution, Inc., is owned by Transcon, Inc., which operates a major motor carrier.

The Plan 3 fleet of reefer trailers has grown from 1,000 units in 1980 to approximately 5,800 trailers at the beginning of the 1982 summer shipping season. This year, the fleet should account for between 75,000 and 80,000 trailerloads of perishables, plus an equal number of moves of dry-freight. ■

Who has the trailers— and who's using them?

The fleet of refrigerated trailers used in Plan 3 perishables movements continues to grow. Here are latest available numbers on who has how many.

Company	Trailers
Agricultural Express of America	198
Agrishare	100
Co-operative Shippers Association	387
Cornucopia Transportation, Inc.	825
Fresh Approach Transport Co.	100
Gelco Rail Services	900
Intermodal Express, Inc.	280
Intermodal Systems, Inc.	300
Lomax Consolidators	70
Martrac	700
National Piggyback Services	603
Pacific Northwest Shippers Association	351
Rail Services, Inc.	229
TRANSFAX	100
Transamerica Distribution Services	400
U.S. Intermodal Distribution	200

As for the shippers and receivers using Plan 3 operations, these are among the majors:

Acme Markets, Inc., Philadelphia; Bud Antle, Inc., Salinas, Calif.; Balcom & Moe, Inc., Pasco, Wash.; The Castellini Co., Cincinnati; Chef Reddy Foods Corp., Othello, Wash.; Certified Grocers, Chicago; Thomas Colace Co., Philadelphia; Consumers Produce Co., Inc., of Pittsburgh; Peter Condakes Co., Inc., Boston; Corgan & Son, Inc., New York; Dominicks Finer Foods, Inc., Northlake, Ill.; Fisher Foods, Inc., Cleveland; Forlizzi Bros., Inc., Boston; J.R. Freri Co., Inc., Boston; Giltenbain Brothers Co., Boston; The Grand Union Co., Elmwood Park, N.J.; Jewel Companies, Inc., Chicago; The Kroger Co., Cincinnati; Lamantia Bros. Arrigo Co., Inc., Chicago; F. G. Lister & Co., Ltd., Toronto; The Ontario Produce Co., Toronto; Ore Ida Food, Inc., Boise; Pacific Pearl Seafoods, Seattle; Paolo Volpe & Sons, Inc., Cleveland; Paramount Produce, Inc., Boston; Pinto Brothers, Inc., Philadelphia; M. Singer Sons Corp., New York; Snokist Growers, Yakima, Wash.; Stop & Shop Companies, Inc., Boston; S. Strock & Co., Inc., Boston; Sunkist Growers, Inc., Sherman Oaks, Calif.; Supermarkets General Corp., Woodbridge, N.J.; Tenneco West Inc., Bakersfield, Calif.; and Wakefern Food Corp., Elizabeth, N.J.

Market

CARLOADINGS

Loadings of revenue freight in the week ended Aug. 7 totaled 352,604 cars, according to the Association of American Railroads. This was a decrease of 76,294 cars, or 17.8%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Aug. 7 are estimated at 14.9 billion, a decrease of 13.8% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**Aug. 7 week**	**July 31 week**	**July 24 week**
Grain	26,227	27,178	27,543
Other farm products	3,109	2,987	3,776
Metallic ores	14,592	12,659	13,320
Coal	110,713	112,358	105,984
Crushed stone, gravel & sand	9,502	9,205	9,611
Nonmetallic minerals	8,894	11,053	10,569
Grain mill products	11,683	11,441	11,139
Food & kindred products	12,506	12,935	12,785
Primary forest products	15,078	15,225	14,802
Lumber & wood products (except furniture)	5,692	6,589	6,047
Pulp, paper & allied products	15,213	16,235	15,411
Chemicals & allied products	20,299	20,410	19,682
Petroleum products	4,848	4,809	4,697
Stone, clay & glass products	10,392	10,123	10,108
Coke	4,270	4,624	4,198
Metals & products	7,780	8,297	7,893
Motor vehicles & equipment	11,417	13,944	14,168
Waste & scrap materials	6,856	6,985	7,038
Forwarder & shipper assn. traffic	8,286	8,326	7,750
All other carloads	45,050	46,538	45,260
LCL traffic	197	222	210
Total Cars Loaded	**352,604**	**362,143**	**351,991**
Cumulative total,	1982		1981
32 weeks	**11,718,002**		**13,279,258**
Estimated revenue ton-miles (billions), 32 weeks	**502.9**		**560.8**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended July 31 totaled 38,104 cars (11.9% below the corresponding 1981 week) and 66,526 trailers or containers (up 8.1% from 1981). Cumulative volume for the first 31 weeks of 1982 is 1,106,416 (up 8.8% from 1981) and 1,952,815 trailers or containers (up 6.5% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended July 21 totaled 3.96 million tonnes (down 3.1% from 1981). Cars loaded totaled 60,971 (down 3.4% from 1981). Cumulative loadings for 1982 were 119.95 million tonnes (down 7.4% from 1981).

- *Chicago Regional Transportation Authority.*—Ordered 24 3,200-hp F40PH diesel-electric units from General Motors' Electro-Motive Division at a cost of $30.6 million. The locomotives, to be delivered in the next six months, will be used in Chicago & North Western commuter operations. Funding came $24.5 million from the federal government and $6.1 million from the state of Illinois.

- *Genesee & Wyoming.*—Will receive $472,581 from the New York State DOT for emergency rehabilitation of its track south of Rochester. The project is the first to be funded by New York's new three-year, $15-million branch-line assistance program.

- *Louisville & Nashville.*—Will lengthen passing sidings at Fagin, Tenn., and Akka, Ala., at a total cost of $3.4 million. At Fagin, between Knoxville and Etowah, Tenn., the existing siding will be extended 11,600 feet to create a fully signaled second track of 17,000 feet. At Akka, just north of Mobile, Ala., L&N will add 11,000 feet to the existing siding to create a second track 14,000 feet long. At both points, high speed turnouts and powered switches will be installed.

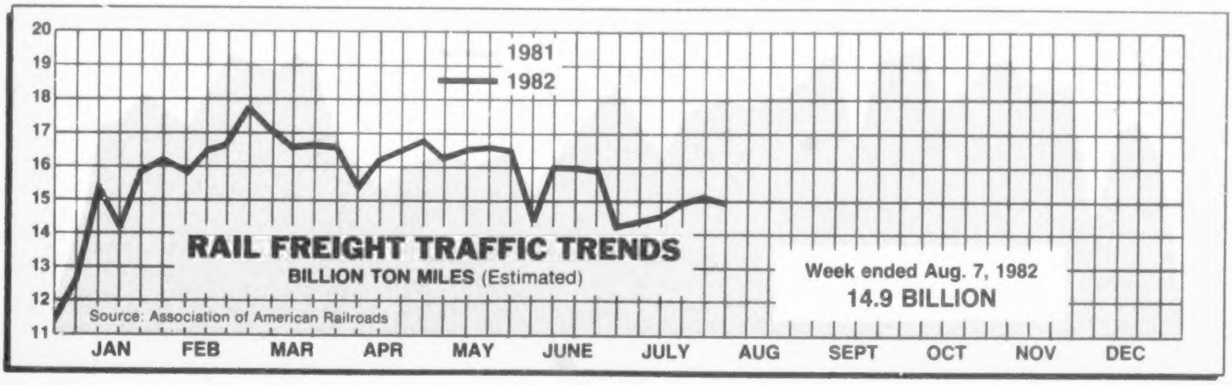
- *New York City Transit Authority.*—Union Switch & Signal Division of American Standard is the apparent low bidder on a major NYCTA signaling and communications modernization project. US&S bid $17.1 million for a contract calling for supply of switch machines, signals, stop layouts, impedance bonds, a control console and various control indication panels on a total of 3½ miles of track in Queens.

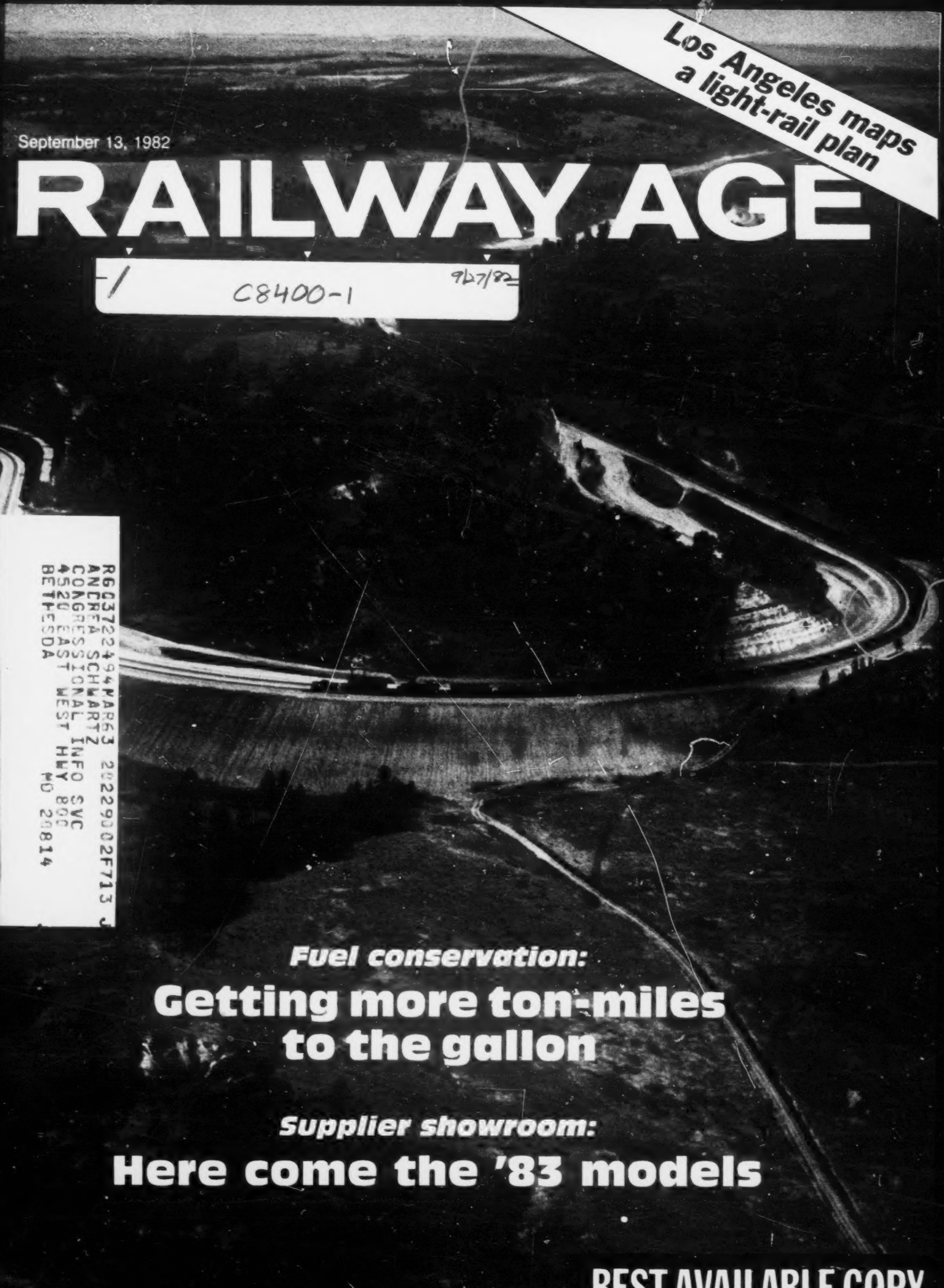
  —NYCTA has placed a $15.5-million order with General Electric for 25 diesel-electric work-train locomotives. Completion of the order in mid-1984 will bring NYCTA's locomotive fleet to 62 units.

  —A $1.2-million order has been awarded to Garrett Railroad Car & Equipment, Inc., of New Castle, Pa., for 24 specially equipped flatcars that will be used to deliver equipment and supplies to contractors engaged in NYCTA's multibillion-dollar renovation program.

- *Niagara Frontier Transit Authority.*—Awarded a $4.8 million contract to the High Voltage Systems Division of the L.E. Myers Co., Toledo, for supply and installation of an overhead 700 volt catenary system, with parallel feeder cables, along NFTA's two-track, 6.4-mile light rail route.

- *Soo Line.*—Will acquire two 2,000-hp GP38-2 diesel-electric units and one 3,000-hp SD40-2 unit from Electro-Motive at a cost of about $2.3 million. Delivery is expected in first-half of 1983.





Los Angeles maps a light-rail plan

September 13, 1982

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Fuel conservation:

Getting more ton-miles to the gallon

Supplier showroom:

Here come the '83 models

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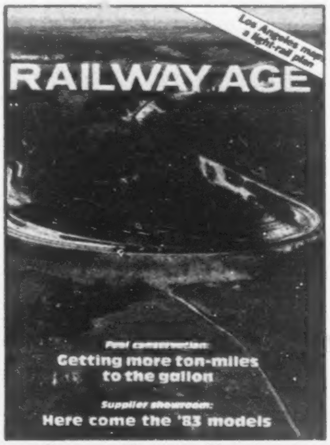
RAILWAY AGE

September 13, 1982

FEATURES



Cover: Breezy Point curve on Burlington Northern 's Belmont line change in Nebraska was photographed by Pat Stafford. *Page 23*

23 **Getting more ton-miles to the gallon**
For North American railroads, a 1% reduction in fuel use can save $50 million a year—an incentive that has led to a far-ranging, industry-wide conservation effort.

31 **Supplier showroom: Here come the '83 models**
Poor business conditions have not stopped the builders from innovating. A special exhibit in print gives a sampling of what they've been working on.

56 **Coal: The story behind the headlines**
Does U.S. coal have a long-term future? The press says it does—and the press also says it doesn't. Here's what CSX's Hays T. Watkins has to say.

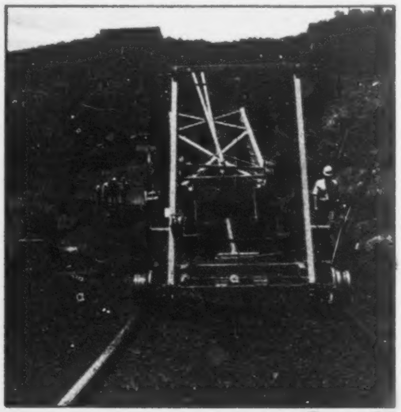
61 **Can aluminizing prolong car life?**
Portec's research and development department is testing out aluminum coatings for steel cars—and so far the results indicate some worthwhile savings.

65 **Jackson Jordan: Back on track, thanks to R&D**
New, efficient track machines keep coming off of the drawing boards and computer screens—and the company says it has regained leadership in its field.

72 **Los Angeles: Putting rail transit back on the map**
Plans for a 22.5-mile, $195-million light rail line between Los Angeles and Long Beach, using former Pacific Electric Railway track, are moving forward.

78 **GSI Engineering: A proud past, a promising future**
After 75 years (and 200,000 trucks) GSI Engineering—now teamed up with Buckeye—says it's prepared to design a truck for just about any rail vehicle.

83 **How to use the R&D tax credit**
An expert describes how railroads, transit agencies, and suppliers can save millions of dollars a year through use of a provision of the 1981 Tax Act.



Page 65

Page 72

NEWS

4 **Short and Significant**
10 **Congress tackles key rail issues**
10 **Budd delivers first car to Baltimore**
14 **MARTA: A new car-buying policy**
14 **French cars for BART?**
14 **MTA authorizes TBTA bond sale**
18 **FRA adopts new power brake rules**
87 **Track Train Dynamics Newsletter**
97 **The Railroad Market**

COMMENT

3 **Inside**
12 **Watching Washington**
18 **Lines on Labor**

DEPARTMENTS

76 **Letters**
86 **100 Years Ago**
91 **Advertising Sales**
93 **People in the News**
95 **Suppliers**
96 **Transit**
97 **Carloadings**
98 **Professional Cards**
99 **Classified Advertising**
100 **Guide to Advertisers**

Market

CARLOADINGS

Loadings of revenue freight in the week ended Aug. 21 totaled 363,587 cars, according to the Association of American Railroads. This was a decrease of 74,748 cars, or 17.1%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Aug. 21 are estimated at 15.3 billion, a decrease of 13.3% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**Aug. 21 week**	**Aug. 14 week**
Grain	24,409	24,721
Other farm products	3,168	3,039
Metallic ores	14,079	13,974
Coal	116,956	114,296
Crushed stone, gravel & sand	10,738	9,653
Nonmetallic minerals	8,926	8,924
Grain mill products	12,698	11,659
Food & kindred products	13,272	12,701
Primary forest products	14,396	14,900
Lumber & wood products (except furniture)	6,140	5,922
Pulp, paper & allied products	15,766	15,673
Chemicals & allied products	21,113	21,555
Petroleum products	5,131	4,962
Stone, clay & glass products	10,518	10,000
Coke	4,072	4,290
Metals & products	7,732	7,077
Motor vehicles & equipment	12,373	10,340
Waste & scrap materials	7,408	7,393
Forwarder & shipper assn. traffic	8,581	8,328
All other carloads	45,943	43,962
LCL traffic	168	204
Total Cars Loaded	**363,587**	**353,573**
Cumulative total,	1982	1981
34 weeks	**12,438,006**	**14,154,712**
Estimated revenue ton-miles (billions), 34 weeks	**533.1**	**596.0**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Aug. 14 totaled 37,138 cars (9.4% above the corresponding 1981 week) and 65,465 trailers or containers (up 7.3% from 1981). Cumulative volume for the first 33 weeks of 1982 is 1,180,993 cars (up 8.9% from 1981) and 2,084,313 trailers or containers (up 6.7% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Aug. 7 totaled 3.2 million tonnes (down 18.8% from 1981). Cars loaded totaled 49,081 (down 15.1% from 1981). Cumulative loadings for 1982 were 127.8 million tonnes (down 8.3% from 1981).

- *Bay Area Rapid Transit District.*—A $6.9 million contract has been awarded to the Fiber Science Division (FSD) of EDO Corp. for the supply of 9,000 fiberglass-reinforced fireproof liners to be used in the refurbishing of 450 BART cars. TODCO of Buffalo, N.Y., is the prime contractor.

- *Chicago Regional Transportation Authority.*—Was awarded a $299,000 research and demonstration grant to develop an improved bill validator for Commuter Fare Automation Systems. All but $40,000 will come from the Urban Mass Transportation Administration.

- *Family Lines.*—Will build a $6-million regional intermodal facility at Nashville, Tenn. The new facility will occupy an 82-acre site on the west side of Radnor Yard. It will have two 5,000-ft tracks, a gantry crane, and parking space for more than 700 trailers and containers. A modular design will permit expansion for anticipated intermodal growth.

- *Toronto Transit Commission.*—Awarded a $10.8-million contract to Ellis-Don Limited for construction of the 4.35-mile Scarborough RT elevated structure (excluding stations).

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

	July		**June**	**Seven months**	
	1982	**1981**	**1982**	**1982**	**1981**
Built new by carbuilders	1,369	2,864	1,244	11,981	28,060
Build new in RR shops	0	119	95	986	2,299
Built new—total	1,369	2,983	1,339	12,967	30,359
Rebuilt	12	47	142	802	698
TOTAL DELIVERED	**1,381**	**3,030**	**1,481**	**13,769**	**31,057**
Locomotives (new and rebuilt)	16	32	54	297	465

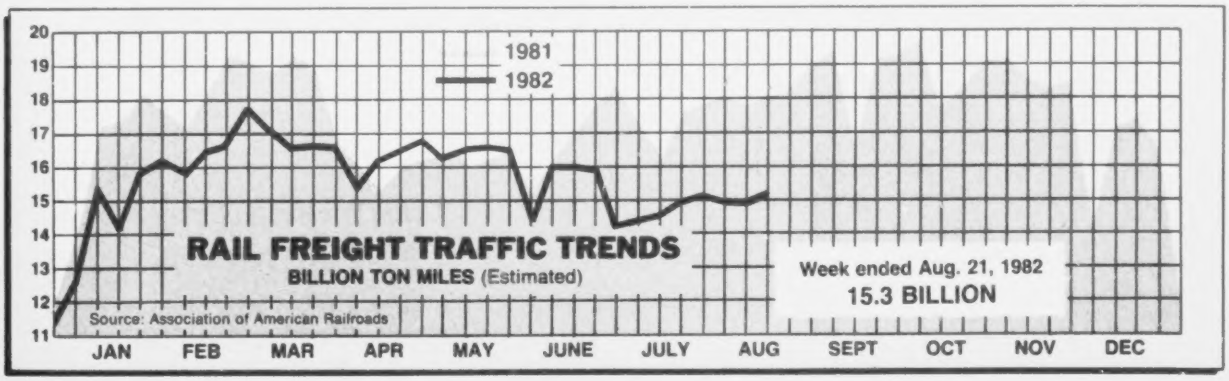
ORDERED

	July		**June**	**Seven months**	
	1982	**1981**	**1982**	**1982**	**1981**
To be built new by carbuilders	179	1,315	586	4,844	11,533
To be built new in RR shops	0	0	0	0	253
To be built new—total	179	1,315	586	4,844	11,786
To be rebuilt	0	0	0	0	1,100
TOTAL ORDERED	**179**	**1,315**	**586**	**4,844**	**12,886**

ON ORDER AND UNDELIVERED

	August 1		**July 1**	**Average Backlog**	
	1982	**1981**	**1982**	**1982**	**1981**
To be built new by carbuilders	6,507	23,809	7,820	9,927	35,121
To be built new in RR shops	680	2,458	680	976	3,202
To be built new—total	7,187	26,267	8,500	10,903	38,323
To be rebuilt	98	402	110	402	313
TOTAL ON ORDER	**7,285***	**26,669**	**8,610**	**11,305**	**38,636**
Locomotives (new and rebuilt)	137	306	144	184	362

*Due to revisions and cancellations of some orders, the Aug 1, 1982, backlog has been reduced by 123 cars.



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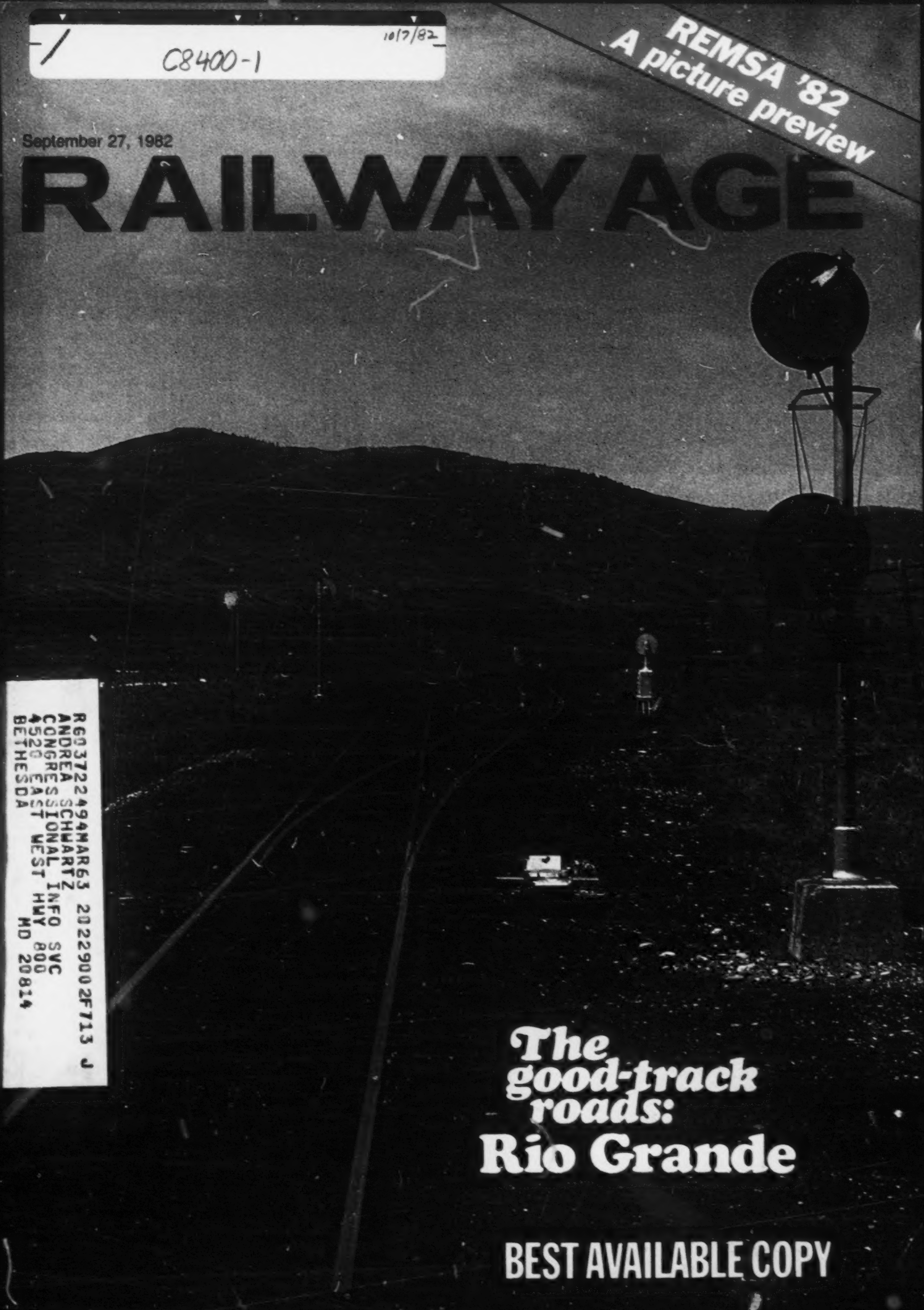

REMSA '82
A picture preview

September 27, 1982

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The good-track roads: Rio Grande

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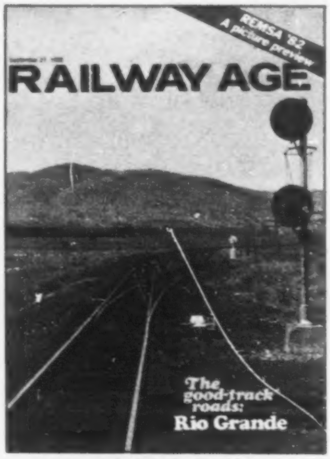
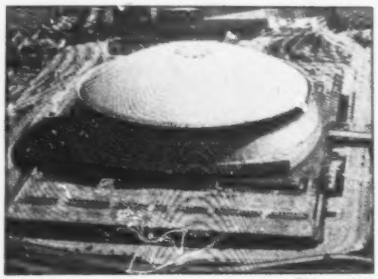
RAILWAY AGE

September 27, 1982



Cover: D&RGW main line at Troublesome, Colo., 98 miles west of Denver, was photographed by Associate Editor Frank Malone. *Page 18*



Page 23

Page 42

FEATURES

15 **Pacific Rail wins ICC nod**
The Commission's verbal approval, which came Sept. 13, caused elation in expected quarters but dismay elsewhere, especially at the Southern Pacific.

18 **D&RGW: The roadway-revenue connection is strong**
Operating in difficult terrain, Rio Grande needs good track to stay competitive, especially as coal traffic rises. D&RGW continues to rise to the challenge.

23 **REMSA 82: A picture preview**
Track suppliers will show off their latest products and materials at the Superdome in New Orleans Oct. 3-6. Here's a sampling of what's in store.

36 **B&LE invests in the environment**
A $5.4-million investment in an Environmental Control Facility anticipated EPA requirements—and left a lot of people feeling good about the railroad.

42 **Who's got (and who's getting) a piece of the Rock**
Two years after its liquidation was ordered, much of the Rock Island is still in operation—either by purchasers or by lessees, some of whom hope to buy.

46 **Contract rates: Bane or blessing?**
They can be both, says Norfolk Southern's Robert Claytor. Unwise pricing, he fears, could produce some of the chaos airlines have experienced.

NEWS

4 **Short and Significant**
8 **Matching m/w to business levels**
8 **B.C. Railway orders GM electrics**
8 **New Metro turnout reduces wear**
9 **Las Vegas advised to go Maglev**
9 **Casey goes to bat for high speed**
10 **Conrail goes after low sulphur coal**
11 **New FMC boxcar is bigger, lighter**
11 **No "gold rush" for bondholders**
12 **Union Pacific tests concrete ties**
12 **Short lines: Not for hobbyists**
57 **The Railroad Market**

COMMENT

3 **Inside**
9 **Watching Washington**
11 **Lines on Labor**

DEPARTMENTS

39 **Revenues & Expenses**
39 **Advertising Sales**
52 **Letters**
54 **People in the News**
55 **Industrial Traffic**
55 **Suppliers**
55 **Associations**
56 **100 Years Ago**
57 **Carloadings**
58 **Classified Advertising**
60 **Professional Cards**
60 **Guide to Advertisers**

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Second quarter figures of calendar year 1982

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

		Operating revenues				Operating expenses: Way & structures			Operating expenses: Equipment			Operating expenses		Operating Ratio		Income after fixed charges		1982 Net Ry. operating income	Net income	
		Freight	Other	Total 1982	Total 1981	Total 1982	Total 1981	1982 Deprec.	Total 1982	Total 1981	1982 Deprec.	Total 1982	Total 1981	1982	1981	1982	1981		1982	1981
Amtrak	3 mos.	—	137,338	137,338	300,527	27,936	18,965	5,905	77,907	91,876	16,398	298,838	332,696	217.59	110.70	(187,155)	(48,508)	(161,500)	(187,155)	(48,508)
	6 mos.	—	247,820	247,820	574,748	57,253	40,887	11,630	152,844	172,817	32,307	603,908	637,972	243.68	111.00	(398,796)	(94,238)	(356,088)	(398,796)	(94,238)
Atchison, Topeka & Santa Fe	3 mos.	519,044	10,637	520,681	610,195	70,849	107,807	3,642	121,899	129,065	22,857	485,458	568,855	91.65	93.22	35,891	35,209	33,754	25,174	24,312
	6 mos.	1,043,255	21,828	1,065,083	1,191,428	147,381	196,436	7,224	250,646	256,711	45,716	1,007,215	1,103,430	94.56	92.61	38,988	75,377	46,475	27,055	52,928
Baltimore & Ohio	3 mos.	242,649	10,463	253,112	244,717	70,729	59,869	2,104	54,056	54,618	7,050	248,116	240,469	98.02	98.26	7,360	23,294	2,087	3,692	16,163
	6 mos.	471,868	20,910	492,778	496,258	115,508	96,929	3,288	114,648	112,467	14,899	496,689	474,685	100.79	95.65	(3,179)	39,544	(1,794)	(2,344)	27,816
Bessemer & Lake Erie	3 mos.	19,456	5,686	25,142	29,269	3,533	4,549	1,418	4,219	711	2,814	22,464	20,619	89.34	70.44	3,886	9,972	1,198	2,403	4,770
	6 mos.	33,911	7,832	41,743	51,660	6,659	7,278	2,127	7,746	3,172	4,221	42,385	37,396	101.53	72.38	1,466	17,301	(539)	1,565	8,674
Boston & Maine	3 mos.	30,346	1,158	31,504	30,965	5,980	6,369	333	8,943	7,674	361	31,434	31,316	99.77	101.13	1,379	712	140	1,186	518
	6 mos.	58,859	2,666	61,525	61,521	11,639	11,935	647	17,045	15,762	723	62,162	61,261	101.03	99.57	1,983	2,338	(497)	1,597	1,948
Burlington Northern	3 mos.	916,057	22,662	938,719	1,007,992	225,018	223,931	6,352	201,197	213,909	18,815	913,025	969,138	97.26	96.14	22,937	45,264	24,399	21,631	34,782
	6 mos.	1,810,808	46,718	1,857,526	2,011,588	371,534	361,117	12,688	401,265	426,219	37,616	1,776,820	1,849,909	95.65	91.96	78,995	182,543	56,132	54,402	131,408
Chesapeake & Ohio	3 mos.	286,084	14,226	300,310	182,613	65,707	56,878	1,932	59,562	58,114	2,249	260,766	227,400	86.85	124.38	68,177	(21,607)	19,991	48,500	(8,271)
	6 mos.	531,713	24,757	556,470	429,748	106,057	92,112	3,860	119,404	107,756	6,217	491,329	443,582	88.29	103.21	99,491	30,844	28,913	63,094	29,541
Chicago & North Western	3 mos.	177,986	24,799	202,785	251,239	38,111	57,077	1,390	49,826	54,036	4,437	199,997	243,198	98.62	96.79	(3,009)	2,800	4,401	(3,015)	913
	6 mos.	355,102	47,238	402,386	511,061	78,246	102,286	2,744	105,120	1 1,235	8,673	418,594	488,688	104.02	95.62	(10,025)	13,102	(13,078)	(10,037)	11,179
Chicago, Milwaukee, St. Paul & Pac.	3 mos.	86,815	12,050	98,865	03,126	22,876	24,160	786	27,194	31,593	3,737	103,668	120,554	104.85	116.89	3,114	38,530	(5,138)	(1,954)	36,956
	6 mos.	173,594	22,822	196,416	206,074	41,195	34,102	1,580	55,615	66,957	7,392	210,371	231,218	107.10	112.20	1,259	179,266	(14,412)	(13,250)	177,611
Clinchfield	3 mos.	25,387	288	25,675	20,884	5,239	4,565	122	4,573	3,591	988	21,600	17,786	84.12	85.16	4	5	4,499	—	—
	6 mos.	51,526	830	52,356	47,785	10,053	8,810	243	9,247	7,674	1,971	43,201	37,259	82.51	77.97	8	8	10,298	—	—
Conrail	3 mos.	765,150	149,678	914,828	1,021,456	208,289	180,134	7,192	230,645	262,822	37,356	923,070	1,023,731	100.90	100.22	(8,061)	(12,593)	(7,887)	(7,941)	(11,968)
	6 mos.	1,498,750	310,375	1,809,125	2,033,120	356,502	338,298	14,475	471,641	540,489	75,261	1,835,163	2,084,560	101.43	102.53	(30,685)	(70,898)	(25,447)	(25,231)	(69,459)
Delaware & Hudson	3 mos.	28,112	1,115	29,227	31,015	6,646	9,054	160	7,700	8,103	867	31,604	31,273	108.13	100.83	(4,502)	(1,846)	(2,280)	(4,502)	(1,846)
	6 mos.	55,656	2,005	57,661	59,171	12,985	10,220	322	15,221	16,668	1,738	61,844	62,765	107.25	106.07	(8,456)	(6,844)	(3,984)	(8,456)	(6,844)
Denver & Rio Grande Western	3 mos.	76,072	1,691	77,763	83,120	14,127	15,992	644	14,071	12,458	3,043	70,391	73,314	90.51	88.20	6,790	9,302	5,365	4,786	5,418
	6 mos.	153,271	3,385	156,656	163,299	27,594	29,318	1,273	29,063	24,742	5,965	142,190	140,852	90.76	86.25	13,436	21,289	10,433	9,397	12,356
Detroit, Toledo & Ironton	3 mos.	18,785	702	19,487	22,507	5,024	4,209	119	6,406	6,530	952	22,380	22,459	114.84	99.78	(3,160)	(912)	(2,889)	(3,160)	(912)
	6 mos.	34,977	1,372	36,349	44,679	8,383	6,930	237	12,890	12,452	1,909	43,394	43,135	119.38	96.54	(7,770)	(228)	(7,037)	(7,770)	(228)
Duluth, Missabe & Iron Range	3 mos.	20,919	822	21,741	34,297	4,216	6,604	884	2,563	3,247	561	16,479	21,344	75.79	62.23	6,060	13,527	2,593	3,385	7,287
	6 mos.	32,833	1,224	34,057	49,181	10,812	12,408	1,758	5,352	6,505	1,113	35,788	40,231	105.08	81.80	231	10,206	(1,587)	358	5,679
Elgin, Joliet & Eastern	3 mos.	13,972	8,295	22,267	28,620	4,388	3,817	194	2,594	4,099	1,848	20,949	24,612	94.08	85.99	2,455	5,227	197	1,334	2,775
	6 mos.	30,063	20,304	50,367	58,231	7,952	6,806	390	4,076	7,058	3,733	42,640	47,488	84.65	81.55	10,331	13,612	2,925	5,529	7,416
Florida East Coast	3 mos.	21,497	275	21,772	26,625	4,582	6,484	316	3,535	4,257	1,008	19,156	22,779	87.98	85.55	5,334	6,546	729	3,447	4,279
	6 mos.	44,328	632	44,960	52,526	10,706	13,279	642	6,719	7,943	2,016	39,185	45,327	87.15	86.29	9,355	10,768	2,818	6,398	7,334
Grand Trunk Western	3 mos.	64,711	2,792	67,503	61,533	10,123	9,289	455	14,365	12,644	1,201	64,010	60,357	94.82	98.08	3,736	25	3,707	3,945	(98)
	6 mos.	122,926	5,687	128,613	117,202	17,776	15,268	905	27,923	24,102	2,401	125,766	113,800	97.78	97.09	2,046	1,477	3,983	3,176	2,752

Illinois Central Gulf	3 mos.	210,240	19,555	229,795	240,812	61,723	55,803	1,984	65,168	67,082	6,546	259,415	256,627	112.88	106.56	(20,214)	(19,683)	(28,536)	(19,608)	16,514
	6 mos.	437,444	40,076	477,520	517,168	102,958	101,687	3,879	144,365	140,722	13,115	525,590	522,664	110.06	101.06	(37,392)	(9,779)	(46,052)	(36,353)	(9,071)
Kansas City Southern	3 mos.	76,857	3,271	80,128	76,046	16,596	15,568	761	16,751	16,721	5,462	70,313	67,612	87.75	88.90	6,881	7,763	7,980	5,090	5,719
	6 mos.	157,553	6,943	164,496	151,097	32,266	28,994	1,520	34,195	31,588	10,392	141,558	130,499	86.05	86.36	17,408	17,026	18,178	12,659	12,894
Long Island	3 mos.	3,645	99,887	103,532	94,907	22,042	19,877	889	25,061	23,306	1,467	108,406	103,899	104.70	109.47	(5,110)	(9,251)	(3,794)	(5,110)	(9,251)
	6 mos.	7,107	196,738	203,845	182,447	47,253	39,518	1,714	51,473	45,791	3,007	223,025	204,326	109.40	111.99	(19,488)	(22,290)	(16,995)	(19,488)	(22,290)
Louisville & Nashville	3 mos.	280,334	5,635	285,969	307,812	58,881	56,416	1,869	66,487	65,554	9,762	271,708	281,703	95.01	91.51	7,132	17,471	18,053	9,447	15,177
	6 mos.	574,697	11,798	586,495	618,840	101,360	103,107	3,637	144,002	136,039	20,386	551,063	564,194	93.95	91.16	20,853	40,078	37,041	19,138	34,953
Missouri-Kansas-Texas	3 mos.	58,007	2,701	60,708	67,412	9,246	14,446	345	17,231	17,004	2,497	56,143	63,127	92.48	93.64	2,402	1,483	4,723	2,402	2,983
	6 mos.	115,286	5,841	121,127	136,742	18,196	24,300	672	33,137	37,862	4,979	112,251	125,867	92.67	92.04	3,439	5,667	9,202	3,439	7,667
Missouri Pacific	3 mos.	433,018	13,669	446,687	471,797	70,861	74,772	2,601	102,470	103,633	17,580	387,770	410,732	86.81	87.05	53,138	56,684	47,019	38,491	39,293
	6 mos.	862,823	28,327	891,150	950,154	126,078	142,243	5,136	210,262	211,193	34,484	775,008	823,053	86.96	86.62	103,222	115,669	90,451	72,279	78,489
Norfolk & Western	3 mos.	473,593	16,966	490,559	347,035	89,064	78,568	3,556	79,678	59,356	14,456	363,758	306,274	74.15	88.25	151,953	47,016	70,262	93,946	26,190
	6 mos.	941,488	33,145	974,633	792,063	151,428	136,174	7,073	163,731	134,346	28,692	721,468	631,911	74.02	79.78	299,028	182,613	140,096	182,951	104,826
Pittsburgh & Lake Erie	3 mos.	11,792	302	12,094	19,645	2,571	3,579	44	2,415	3,103	264	14,922	18,263	123.38	92.96	(4,957)	(1,093)	(2,546)	(4,678)	(1,318)
	6 mos.	25,610	2,134	27,744	38,964	5,884	6,444	84	5,744	6,229	569	32,417	36,530	116.84	93.75	(8,256)	(1,814)	(4,385)	(7,984)	(2,196)
St. Louis Southwestern	3 mos.	87,210	1,346	88,556	101,181	13,451	17,857	548	20,254	17,372	5,938	78,333	88,042	88.45	87.01	13,054	11,359	8,805	11,636	7,633
	6 mos.	185,927	2,709	188,636	192,222	27,432	33,256	1,008	41,488	32,584	11,912	162,418	167,752	86.10	87.26	29,496	21,051	18,221	21,499	14,315
Seaboard Coast Line	3 mos.	281,375	10,233	291,608	327,305	62,581	59,634	2,435	76,254	76,739	9,230	297,453	306,877	102.00	93.61	21,721	40,978	1,198	28,345	40,582
	6 mos.	588,904	20,174	609,078	671,224	112,313	113,860	4,800	156,718	155,936	18,584	598,180	612,746	98.21	91.28	51,895	105,477	15,358	55,507	101,386
Soo Line	3 mos.	69,844	1,615	71,459	79,928	16,189	20,879	434	15,266	14,386	2,017	66,265	69,855	92.73	87.39	6,665	10,403	2,792	4,057	6,411
	6 mos.	144,311	2,899	147,210	159,392	28,126	31,723	854	32,166	29,120	4,037	133,404	132,010	90.62	82.82	16,352	28,254	7,942	10,074	17,501
Southern	3 mos.	411,702	9,534	421,236	438,152	71,969	67,541	5,072	82,231	80,335	20,919	355,410	352,807	84.37	80.52	68,072	81,577	43,117	43,944	52,527
	6 mos.	813,290	19,238	832,528	875,607	124,840	125,564	9,825	164,587	160,362	41,541	700,562	696,457	84.14	79.53	135,643	173,130	85,875	86,730	111,634
Southern Pacific	3 mos.	513,820	17,097	530,917	611,068	82,894	96,767	4,720	149,075	150,043	21,654	542,577	591,675	102.19	96.82	11,370	21,235	(12,039)	10,991	18,001
	6 mos.	1,044,280	33,835	1,078,115	1,156,357	177,839	175,972	9,414	317,390	285,917	43,343	1,119,099	1,130,784	103.80	97.78	(6,357)	24,918	(40,984)	(6,357)	21,751
Union Pacific	3 mos.	454,122	5,848	459,970	540,559	79,537	92,300	3,247	101,069	105,044	24,418	426,542	470,262	92.73	86.99	31,311	57,749	22,697	20,456	34,509
	6 mos.	918,266	12,363	930,629	1,075,587	139,671	162,645	6,358	194,074	204,428	48,839	840,771	910,183	90.34	84.62	80,671	139,605	60,294	50,898	87,277
Western Maryland	3 mos.	23,106	648	23,754	20,657	5,662	5,642	214	3,511	3,084	1,405	20,205	17,624	85.05	85.31	4,450	2,879	1,666	2,560	1,615
	6 mos.	42,771	1,357	44,128	43,136	8,529	10,199	428	6,484	5,074	2,981	35,642	37,254	80.76	86.36	9,855	5,775	4,161	5,514	3,241
Western Pacific	3 mos.	44,229	546	44,775	46,616	7,936	8,185	121	10,312	10,910	1,778	46,809	49,656	104.54	106.52	(1,460)	(2,554)	(1,249)	(705)	(2,199)
	6 mos.	89,762	1,138	90,899	95,847	14,790	14,734	231	20,961	21,609	3,567	94,748	96,282	104.23	100.45	(317)	375	(3,179)	293	(385)

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Market

CARLOADINGS

Loadings of revenue freight in the week ended Sept. 4 totaled 362,793 cars, according to the Association of American Railroads. This was a decrease of 88,873 cars, or 19.7%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Sept. 4 are estimated at 15.2 billion, a decrease of 18.6% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	Sept. 4 week	Aug. 28 week
Grain	23,852	25,133
Other farm products	2,966	3,113
Metallic ores	13,741	13,691
Coal	111,498	115,233
Crushed stone, gravel & sand	10,272	11,249
Nonmetallic minerals	9,327	8,836
Grain mill products	11,846	12,830
Food & kindred products	13,473	13,475
Primary forest products	13,662	13,995
Lumber & wood products (except furniture)	6,174	6,371
Pulp, paper & allied products	15,651	16,072
Chemicals & allied products	22,148	20,625
Petroleum products	4,958	5,098
Stone, clay & glass products	10,903	10,785
Coke	4,376	3,995
Metals & products	8,072	7,659
Motor vehicles & equipment	14,002	12,845
Waste & scrap materials	7,470	7,403
Forwarder & shipper assn. traffic	9,115	8,854
All other carloads	48,963	46,814
LCL traffic	324	194
Total Cars Loaded	**362,793**	**364,270**
Cumulative total,	1982	1981
36 weeks	**13,163,493**	**15,064,756**
Estimated revenue ton-miles (billions), 36 weeks	**15.2**	**18.7**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Aug. 28 totaled 41,110 cars (14.0% above the corresponding 1981 week) and 67,291 trailers or containers (up 3.0% from 1981). Cumulative volume for the first 35 weeks of 1982 is 1,260,083 (up 9.2% from 1981) and 2,221,003 trailers or containers (up 6.8% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Aug. 21 totaled 3.7 million tonnes (down 6.5% from 1981). Cars loaded totaled 57,949 (down 7.0% from 1981). Cumulative loadings for 1982 were 135.35 million tonnes (down 8.1% from 1981).

- *Hellenic Railways (Greece).*—Is seeking international bids for major improvements to its standard gauge north-south main line. Specific projects include electrification of the 47-mile line from Thessaloniki to the Yugoslavian border, plus related signaling and telecommunications ($33.5 million); signaling of the 59-mile Inoi-Tithorea line ($6.4 million) and the 38-mile Domokos-Larissa line ($5 million); improvement of telecommunications on the entire 323-mile Athens-Thessaloniki line ($25.7 million); and acquisition and installation of a computer ($1.1 million). These improvements are part of an overall modernization program estimated to cost $510 million.

- *Milwaukee Road*—Will lease 210 100-ton coal gondola cars valued at more than $7 million from Portec's Railcar Division, with delivery to take place in late 1982 and early 1983. Main use will be in contract unit-train service between Indiana mines and port facilities during the Great Lake shipping season.

- *Ortner Freight Car Co.*—Will supply 12 special heavy-duty flatcars for Colombia's El Cerrejon coal mining project in addition to 139 Rapid Discharge coal cars ordered earlier by Morrison-Knudsen, the project's prime contractor. The 60-ft, 90-metric-ton cars will carry a variety of equipment and materials for construction of the 90-mile railroad itself and for the mining, shipping and receiving facilities that are part of the $3-billion project.

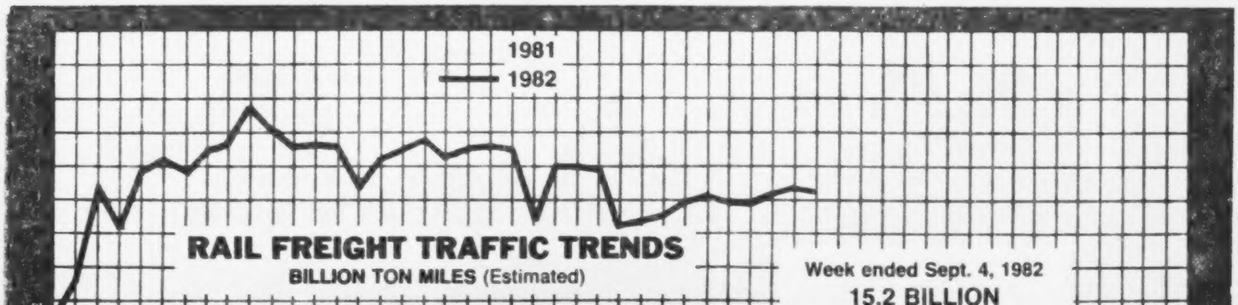
- *Union Pacific.*—Will build a new trailer loading/unloading facility at Cheyenne at a cost of $367,000, to improve access for piggyback traffic to two Interstate highways, and eliminate parking congestion, excessive switching moves and main-track crossing delays at the existing facility. Yard construction will include installation of 2,500 feet of new track with four turnouts, relocation of almost 700 feet of track, and installation of 1,200 feet of graveled surface for trailer parking and transfer facilities. The yard is expected to be in operation in November.

ESTIMATED OWNERSHIP—ALL REVENUE FREIGHT CARS

August 1, 1982 vs. August 1, 1981

		Box	Covered Hopper	Gondola	Hopper	Flat	Refg.	All Others	TOTAL
Class I RRs	1982	295,833	171,501	139,860	300,531	89,065	56,753	23,798	1,077,341
	1981	324,127	172,270	145,275	309,799	92,528	60,053	26,092	1,130,144
Class II & S&T Cos.*	1982	53,446	9,343	10,695	12,924	4,728	3,559	3,339	98,034
	1981	56,841	9,346	11,331	13,623	5,457	3,622	3,240	103,460
Railbox-Railgon	1982	24,945		3,999					28,944
	1981	24,834		3,504					28,339
RRO&C** Refgs.	1982						3,402		3,402
	1981						3,418		3,418
Private	1982	514	129,306	27,542	21,170	52,658	6,272	190,428	427,892
	1981	828	123,561	24,082	21,077	52,157	8,278	189,183	419,166
GRAND TOTAL	1982	374,738	310,152	182,096	334,625	146,451	69,986	217,565	1,635,613
	1981	406,631	305,177	184,192	344,499	150,142	75,371	218,515	1,684,527

* Class II railroads and switching and terminal companies.
** Railroad owned and controlled refrigerator car lines.



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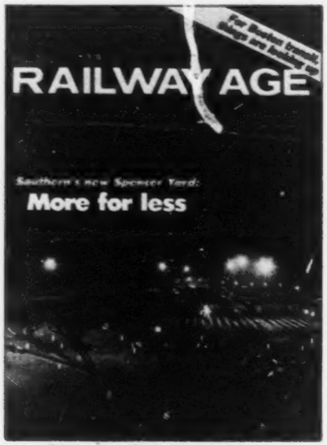
RAILWAY AGE

October 11, 1982

FEATURES



Cover: Southern's Spencer Yard at Linwood, N.C., was photographed by Contributing Editor William D. Middleton. *Page 14.*

14 Southern's Spencer Yard: More for less

An investment of $48 million is paying off at Southern's seventh automated class yard. Promised cost savings and service improvements are being delivered.

21 B&M: Building a better railroad

Major track improvement programs continue as B&M prepares for its likely role as a key element in the new Guilford Transportation Industries system.

29 MBTA: Greater stability for Boston transit

While MBTA has made some painful decisions it has also started to improve its plant and equipment. Now the agency stands better prepared to handle its problems.

33 EMD: Steady progress toward fuel efficiency

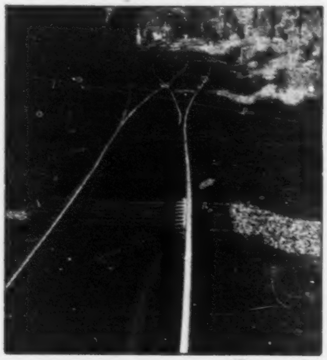
GM's Electro-Motive Division is meeting the challenges that come with demands for more reliable, durable and fuel-efficient locomotives.

38 Railway Systems Suppliers Showcase

A preview of some of the new products that will be shown by RSSI members in St. Louis Oct. 24-26 during AAR's C&S Division meetings.

NEWS

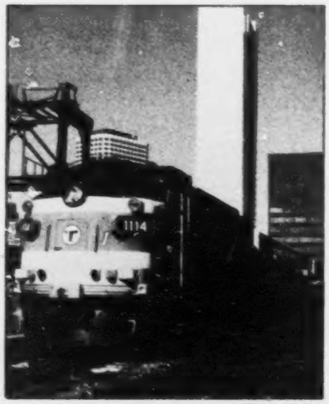
4 Short and Significant
8 Carriers, unions wrap up negotiations
11 RPI committee to look ahead
11 Trackage rights dereg proposed
11 CP asks for Crow rate compensation
12 New records for BN coal
12 Canada Southern agreement made
41 Coal rate contracts get SP's vote
48 The Railroad Market



Page 21

COMMENT

3 Inside
10 Lines on Labor
12 Watching Washington



Page 29

DEPARTMENTS

43 Products Report
46 People in the News
47 Suppliers
47 Transit
48 Carloadings
49 100 Years Ago
50 Professional Cards
51 Classified Advertising
52 Guide to Advertisers

Market

CARLOADINGS

Loadings of revenue freight in the week ended Sept. 18 totaled 360,440 cars, according to the Association of American Railroads. This was a decrease of 91,589 cars, or 20.3%, compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Sept. 18 are estimated at 15.1 billion, a decrease of 19.5% below the corresponding week of 1981.

REVENUE FREIGHT CARLOADINGS

Commodity	**Sept. 18 week**	**Sept. 11 week**
Grain	22,408	19,973
Other farm products	2,806	2,546
Metallic ores	12,095	11,521
Coal	112,906	101,430
Crushed stone, gravel & sand	10,151	9,340
Nonmetallic minerals	9,729	7,321
Grain mill products	12,261	10,365
Food & kindred products	13,947	11,854
Primary forest products	14,695	12,286
Lumber & wood products (except furniture)	6,087	4,653
Pulp, paper & allied products	15,731	13,962
Chemicals & allied products	21,800	19,192
Petroleum products	4,718	4,131
Stone, clay & glass products	11,058	9,609
Coke	4,275	4,059
Metals & products	7,372	6,228
Motor vehicles & equipment	14,780	11,976
Waste & scrap materials	7,697	6,216
Forwarder & shipper assn. traffic	8,253	6,782
All other carloads	47,435	38,618
LCL traffic	236	138
Total Cars Loaded	**360,440**	**312,200**
Cumulative total,	1982	1981
38 weeks	**13,835,935**	**15,901,305**
Estimated revenue ton-miles (billions), 38 weeks	**590.3**	**668.0**

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Sept. 11 totaled 34,023 cars (14.6% above the corresponding 1981 week) and 56,720 trailers or containers (up 7.4% from 1981). Both weeks included the Labor Day holiday. Cumulative volume for the first 37 weeks of 1982 is 1,337,906 cars (up 9.5% from 1981) and 2,349,980 trailers or containers (up 6.9% from 1981).

CANADIAN CARLOADINGS

Canadian railway revenue freight loaded in the seven-day period ended Sept. 7 totaled 2.97 million tons (down 31.6% from 1981). Cars loaded totaled 47,537 (down 28.4% from 1981). Cumulative loadings for 1982 were 141.5 million tons (down 10.1% from 1981).

- *Burlington Northern.*—Will replace conventional bulkheads in 100 boxcars with heavy-duty, "low-profile" bulkheads for shipments of aluminum coils and ingots. The work will be done at BN's Havelock, Neb., shops at a cost of $1.4 million, and will be completed in fourth-quarter 1982. Last year, BN carried 1.2 million tons of aluminum, 95% of which was coils and ingots.

- *Rede Ferroviaria Federal S.A.*—Awarded a contract valued at $52 million (Canadian) to Bombardier for the supply of engines, parts, and technical supervision for the rebuilding of 84 diesel-electrics for Brazil's state-owned railway. Financing is being furnished by Canada's Export Development Corp. (85%) and the National Bank of Canada (15%).

- *Union Switch & Signal.*—Awarded an $8-million contract for communications systems to Computer Sciences Corp. for work to be performed on two mass-transit subway lines in Seoul, South Korea. Computer Sciences will engineer, furnish and supervise installation of communications facilities at 47 stations and a control center on 35 miles of double-track right-of-way. Facilities to be furnished will include radio, telephone and closed-circuit television equipment, plus a pulse code modulation T-carrier system, timing clock systems and audio recording equipment.

- *Freight cars and locomotives.*—The following report has been received from the AAR and the ARCI:

DELIVERED

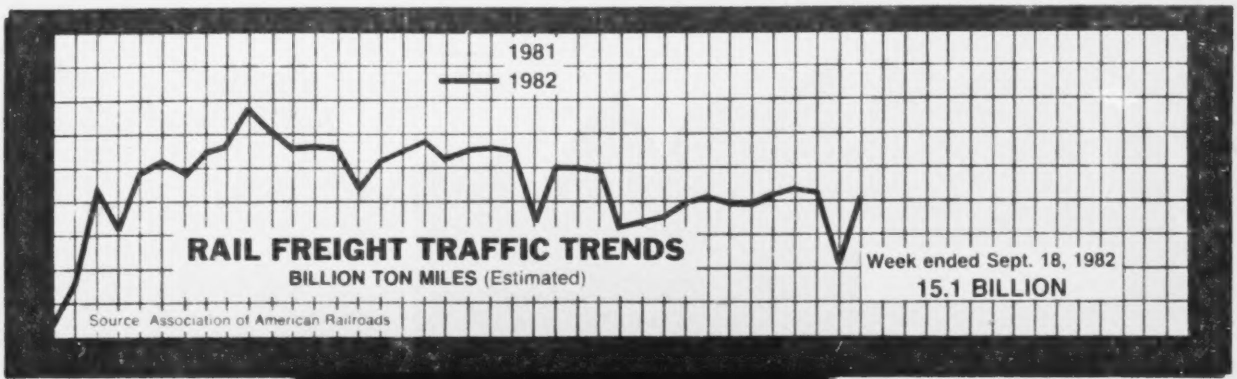
	August		**July**	**Eight months**	
	1982	**1981**	**1982**	**1982**	**1981**
Built new by carbuilders	992	2,971	1,369	12,973	31,132
Built new in RR shops	68	213	—	1,054	2,512
Built new—total	1,060	3,184	1,369	14,027	33,644
Rebuilt	98	65	12	900	763
TOTAL DELIVERED	**1,158**	**3,249**	**1,381**	**14,927**	**34,407**
Locomotives (new and rebuilt)	25	73	16	322	508

ORDERED

To be built new by carbuilders	373	798	179	5,175	12,231
To be built new in RR shops	0	0	0	0	253
To be built new—total	373	798	179	5 175	12,484
To be rebuilt	0	0	0	0	1,100
TOTAL ORDERED	**373**	**798**	**179**	**5,175**	**13,584**

ON ORDER AND UNDELIVERED

	September 1		**August 1**	**Average Backlog**	
	1982	**1981**	**1982**	**1982**	**1981**
To be built new by carbuilders	6,217	21,403	6,507	9,463	33,406
To be built new in RR shops	612	2,245	680	931	3,082
To be built new—total	6,829	23,648	7,187	10,394	36,488
To be rebuilt	0	337	98	352	316
TOTAL ON ORDER	**6,829**	**23,985**	**7,285**	**10,746**	**36,804**
Locomotives (new and rebuilt)	101	267	137	173	350



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